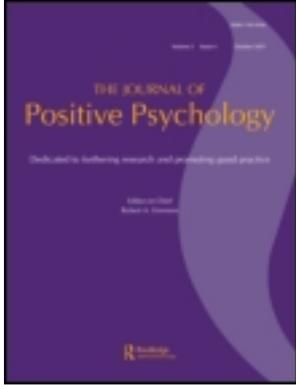


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## Finding happiness in negative emotions: An experimental test of a novel expressive writing paradigm

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Using an experimental writing design, this study pitted a novel emotion regulation strategy, integrating psychological acceptance and positive reappraisal, against two established strategies for increasing psychological well-being: emotional disclosure (Pennebaker, 1997) and positive reappraisal (DeNeve & Cooper, 1998; Gross & John, 2003). 315 undergraduate students wrote on four consecutive days about the biggest problem in their lives and were randomly assigned to use one of the three strategies: (1) emotional disclosure, (2) positive reappraisal, or (3) acceptance + positive reappraisal. Results indicated that the integrative condition led to optimal emotional well-being outcomes at post-intervention, including: greater happiness and positive emotions, marginally fewer negative emotions, and greater overall psychological acceptance. Findings indicate that accepting one's negative emotions and then trying to seek out positives might be an optimal strategy for building happiness.

**Keywords:** happiness; expressive writing; acceptance; negative emotions; positive emotions

In a 1940s hit song, American singer and songwriter Johnny Mercer offered a simple approach for attaining happiness: 'You've got to accentuate the positive, Eliminate the negative, Latch on to the affirmative, Don't mess with Mister In-between.' Although some researchers assess happiness using global evaluations (e.g., life satisfaction; Diener, Emmons, Larsen, & Griffin, 1985) and eudaimonic measures (e.g., purpose in life; Ryff, 1989), happiness is commonly indexed as the frequency of positive emotions and infrequency of negative emotions (for a review, see Lyubomirsky, King, & Diener, 2005). Recent research, however, has posited that happiness may be more related to a compassionate embracing of a full range of emotions, including negative emotions (Ben-Shahar, 2007; Hayes, 1994; Teasdale, Segal, & Williams, 2003). In this study, primarily using outcomes of positive and negative emotions to measure happiness, we examine the impact that different strategies of relating to negative emotions have on happiness.

Research in the emerging field of positive psychology has brought focus to the importance of understanding psychological health, in addition to psychological dysfunction (Sheldon & King, 2001). As happiness is a central goal that all humans strive for and is an underlying goal of other pursuits, such as personal achievement, status, and wealth (Ben-Shahar, 2007), we are interested in examining optimal strategies for fostering happiness. Most interventions aimed to build happiness are designed to increase positive

emotions (see Fredrickson, 2000 for a review; Seligman, Steen, Park & Peterson, 2005), while little attention has been paid to negative emotions. Clinical interventions do target negative emotions, though typically to the exclusion of positive emotions (Sheldon & King, 2001), and they usually focus on eliminating negative emotions. There is a gap in this research, therefore, on the potential salutary effects of experiencing negative emotions. Although increasing positive emotions is an essential part of building happiness, it may be an incomplete strategy, leaving little room for the potentially valuable role of negative emotions. To address this limitation in this research on happiness, we propose a strategy for relating to negative emotions that may enhance psychological health and happiness.

In examining this literature for strategies to regulate one's negative emotions in an effort to build happiness or emotional well-being, two somewhat contradictory themes emerge. One body of research has demonstrated the psychological health benefits of a willingness to experience and express all psychological emotions without changing or controlling them (Hayes, 1994; Pennebaker, 1998). In contrast, a second body of research has demonstrated that interpreting potentially negative situations in more positive ways fosters psychological well-being (Gross & John, 2003).

Studies examining the effects of emotional disclosure have shown that encouraging individuals to openly express their emotions through expressive

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writing is associated with greater psychological well-being (Frattaroli, 2006; Pennebaker, 1997, 1998; Pennebaker & Graybeal, 2001). A related strategy for emotion regulation, psychological acceptance, has gained attention in the field of clinical psychology. Acceptance has been defined as a willingness to experience all psychological emotions without changing, avoiding, or controlling them (Hayes, 1994). Acceptance-based strategies have been associated with positive change in a wide range of psychological conditions (e.g., depression, social phobia, work stress; Hayes et al., 2006). Mindfulness, which has been described as 'the complete owning of each moment of your experience' (Kabat-Zinn, 1990) has also been shown to promote psychological well-being through the 'cultivation of an attitude of "acceptance" and "allowing" towards difficult and unpleasant experiences' (Teasdale et al., 2003).

In contrast, an alternative body of research indicates that reinterpreting potentially negative situations in positive ways through cognitive reappraisal is beneficial to psychological health (DeNeve & Cooper, 1998; Gross, 2008; Gross & John, 2003; Richards, Butler, & Gross, 2003; McCrae & Costa, 1986; Stones & Kozma, 1986). Similarly, research has also shown that greater well-being is associated with positive illusions, which are defined as enhanced perceptions of one's self, one's future, and one's sense of control (Armor & Taylor, 1998; Scheier & Carver, 1993; Taylor & Armor, 1996). In addition, studies have evidenced positive effects following negative life events when individuals derive positive meaning from the experience (Folkman, 1997, 2008). A recent meta-analysis found that benefit-finding, defined as 'positive effects that result from traumatic events' was significantly associated with positive well-being (Helgeson, Reynolds, & Tomich, 2006). Experimental studies have shown that subjective well-being increases when participants write about positive topics, such as their best possible future selves (King, 2001) or intensely positive experiences (Burton & King, 2004). In addition, King and Miner (2000) demonstrated that instructing participants to write about perceived benefits resulting from a trauma increased subjective well-being.

In the context of these somewhat contradictory strategies for relating to negative emotions, we asked whether there might be a way of relating to negative emotions that incorporated the best aspects of each strategy. The Pennebaker expressive writing paradigm (Pennebaker, 1997) engenders emotional disclosure by encouraging individuals to let go and express any and all emotions. Many people, however, have difficulty allowing themselves to express negative emotions and may need to be given explicit permission to do so (Ben-Shahar, 2007). Therefore, we aimed to build on the Pennebaker paradigm's ability to foster disclosure

by explicitly guiding individuals to write about and thereby accept the negative emotions associated with a problem. Then, extending empirical evidence supporting the efficacy of positive reappraisal (DeNeve & Cooper, 1998; Gross & John, 2003), we contend that seeking out the positive aspects or possible benefits of a problem is especially beneficial after first confronting the underlying negative emotions.

The theoretical models of Acceptance and Commitment Therapy (Hayes, Strosahl, & Wilson, 1999) and Dialectical Behavior Therapy (Linehan, 1994) provide illustrations of models integrating acceptance and positive action in a clinical context. In both interventions, clients are taught to accept themselves and their feelings while making changes to improve their lives (Baer, 2003; Hayes et al., 1999). Although emerging evidence has demonstrated the positive impact of these dialectical approaches in therapy, this paradigm has not been examined as an emotion regulation strategy for approaching everyday negative emotions in non-clinical populations.

Moreover, experimental studies examining an integration of writing about negative and positive themes have failed to demonstrate additional benefits from combining the two approaches (King, 2001; King & Miner, 2000). Limitations in these two previous experiments examining an integration of writing about negative and positive themes include not disclosing at the outset the plan for the entire writing experiment and not providing sufficient time to write about the negative and positive components. In the study by King (2001), participants wrote about a trauma for the first 2 days of the writing experiment and then about their best possible self for days 3 and 4. King suggested that a possible reason that this strategy was not beneficial is that participants had to shift course midstream unexpectedly. In King and Miner's study (2001), participants wrote each day of a 3-day writing experiment about a trauma for the first 10 min and then about perceived benefits of the trauma for the next 10 min. The authors speculated that this strategy might not have been successful due to the fact that 10 min was not enough time to write about an emotional response to trauma. We seek to address both of these limitations in this study.

### *Present study*

Using an experimental writing paradigm, this study aims to reconcile a contradiction in current research between two empirically supported but somewhat opposing emotion regulation strategies for relating to negative emotions, by proposing an emotion regulation strategy that integrates the two established strategies. This novel emotional regulation strategy consists of acceptance of one's negative emotions followed by

positive reappraisal. In the context of the biggest current problem in each participant's life, this study uses an experimental writing paradigm to pit this integrative emotion regulation strategy against two established strategies for increasing psychological well-being: open expression of emotions (emotional disclosure, Pennebaker, 1997) and focusing on positive aspects and possible positive benefits (positive reappraisal, DeNeve & Cooper, 1998; Gross & John, 2003). Further, because some research has demonstrated that people with greater distress associated with a trauma report greater growth after the trauma (Aldwin, Levenson, & Spiro, 1994), we examine the possible moderating role of level of emotional distress in fostering an increase in happiness.

It was predicted that a combination of acceptance and positive reappraisal, in which participants write first about negative emotions and then articulate positive aspects of the problem, would lead to the greatest emotional well-being. Outcomes included indicators of positive psychological health, such as happiness, psychological acceptance, and positive emotions, as well as indicators of poor psychological health, such as depressive symptoms and negative emotions. It was also predicted that the level of emotional distress associated with the problem would moderate the relationship between writing condition and happiness, such that the acceptance + positive reappraisal condition would lead to the greatest level of happiness at higher levels of emotional distress. Finally, it was predicted that changes in emotional well-being would be maintained at a 1-week follow-up.

## Method

### *Participants*

Three hundred and fifteen undergraduate students at the University of Texas at Austin participated in this experiment either to receive course credit for an Introduction to Psychology class or to earn a chance at winning a raffle. The sample included 205 women (65.1%) and 110 men (34.9%).

### *Procedure*

Before the writing portion of the experiment, participants completed pre-intervention measures of happiness, psychological acceptance, positive and negative emotions, and depressive symptoms. In addition, they completed a measure of dispositional optimism, a potential moderator. After completing the measures, participants were guided into a private room, in which they wrote for 20 min each day, for four consecutive days, about the biggest problem or most significant challenge they were experiencing in their lives at this time. After the fourth day of writing, participants

completed post-intervention measures of happiness, psychological acceptance, positive and negative emotions, and depressive symptoms. At follow-up, 1 week later, participants completed the same set of measures that they completed at post-intervention.

Using an experimental design, participants were randomly assigned to one of three conditions: emotional disclosure, positive reappraisal, or acceptance + positive reappraisal.

The emotional disclosure condition was based on Pennebaker's (1997) expressive writing paradigm and encouraged participants to write about their deepest thoughts and feelings but provided little specific instruction. Writing instructions asked participants to: 'Really get into it and freely express any and all emotions or thoughts that you have about the experience.' (See Appendix for complete writing instructions for all conditions.)

The positive reappraisal condition was based on research supporting the benefits of cognitive reappraisal (Gross & John, 2003), and asked participants to write only about the positive aspects of their problem. The overarching structure and language in these instructions were adapted from a previous expressive writing paradigm in which participants wrote about perceived benefits of trauma (King & Miner, 2000). Participants were asked to: 'Please write about these positive aspects of the problem and the positive things that could come from the problem.'

Integrating the previous two approaches, the acceptance + positive reappraisal condition asked participants to write freely about their negative emotions for the first 2 days and *then about the positive* aspects of the problem for the second 2 days. For the first 2 days of writing, participants were asked to: 'Please write about the negative feelings you have that stem from the problem.' The overarching structure and language in the instructions for the second 2 days were the same as in the instructions for the positive reappraisal condition and were based on previous expressive writing studies (King & Miner, 2001; Pennebaker, 1997).

Participants in all conditions were informed of the instructions for all 4 days of writing at the outset of the experiment.

## *Measures*

### *Happiness*

The Fordyce Emotions Questionnaire (Fordyce, 1988) was used to assess happiness. This questionnaire consists of two items: (1) an 11-point scale of average happiness/unhappiness, ranging from 'extremely happy (feeling ecstatic, joyous, fantastic)' to 'extremely unhappy (utterly depressed, completely down)' and (2) an item asking for the amount of time

(in percentages totaling 100) spent in 'happy,' 'unhappy,' and 'neutral' moods, on the average. Reliability of the measure is good (test-retest reliability for 2-week period,  $r=0.86$ ). Convergent validity has been shown with established measures of well-being (e.g.,  $r=0.64$  with Diener's Satisfaction With Life Scale), and divergent validity has been demonstrated with indicators of poor mental health (e.g.,  $r=-0.54$  with Beck Depression Inventory). The Cronbach's alpha in this study is 0.84. Participants responded based on the time frame of 'the past week.'

#### *Psychological acceptance*

Psychological acceptance was measured with the Acceptance and Action Questionnaire (Hayes, Strosahl, & Wilson, 2004). The questionnaire has nine items with seven possible responses, ranging from 'never true' to 'always true.' Examples of items are: 'Anxiety is bad' and 'I'm not afraid of my feelings' (reverse-scored). A total score consists of the sum of item scores, and higher scores indicate lower psychological acceptance. Test-retest reliability over a 4-month period for the 16-item version was 0.64, and the internal consistency was 0.70. In this study, the Cronbach's alpha is 0.65.

#### *Positive emotions*

Two measures were used to assess positive emotions: the Positive Mood subscale of the Positive/Negative Mood Scale (PNMS; Diener & Emmons, 1984) and the Positive Affect subscale of the Positive and Negative Affect Schedule (PANAS; Watson, Clark, & Tellegen, 1988).

The Positive Mood subscale of the PNMS assesses the extent to which 10 adjectives describing positive moods apply to respondents. Using a scale of 1 (not at all) to 6 (extremely much), participants rate the extent to which each item (e.g., happy, pleased) describes their mood state. Average inter-item correlation was 0.71 for a version that used a timeframe of the past month, and the alpha coefficient for reliability was 0.89. In this study, the Cronbach's alpha is also 0.89. In this study, a timeframe of the past week was used for pre-intervention and follow-ups. For post-intervention measures, participants were asked how they felt currently (i.e., 'right now, at the present moment'). This same approach was used as the timeframe for all measures of positive and negative emotions.

The Positive Affect subscale of the PANAS consists of 10 single adjectives measuring positive affect. The measure asks individuals to rate to what extent each adjective describes the way they feel (Watson et al., 1988). Sample items are: 'interested,' 'excited,' and 'alert.' Rating is based on a five-point scale, ranging from 1 (very slightly or not at all) to 5 (extremely).

Cronbach's alpha ranged from 0.83 to 0.90 for a 12-item version of the subscale (Wills, Shinar, Sandy, & Yaeger, 1999). In this study, the Cronbach's alpha is 0.85.

#### *Negative emotions*

Two measures were used to index negative emotions: the Negative Mood subscale of the Positive/Negative Mood Scale (PNMS; Diener & Emmons, 1984) and the Negative Affect subscale of the Positive and Negative Affect Schedule (PANAS).

The Negative Mood subscale of the PNMS was used to rate the extent to which seven adjectives describing negative moods applied to respondents. Using a scale of 1 (not at all) to 6 (extremely much), participants rate the extent to which each item (e.g., depressed/blue, unhappy) describes their mood. The alpha coefficient for reliability is 0.84 (Diener & Emmons, 1984), and in this study, it is 0.86.

The Negative Affect subscale of the PANAS consists of 10 adjectives measuring negative affect. The measure asks individuals to rate to what extent each adjective describes the way they feel (Watson et al., 1988). Sample items are: 'distressed,' 'guilty,' and 'scared.' Rating is based on a five-point scale, ranging from 1 (very slightly or not at all) to 5 (extremely). Cronbach's alpha ranged from 0.88 to 0.93 for a 12-item version of the subscale (Wills, Shinar, Sandy, & Yaeger, 1999), and in this study, it is 0.80.

#### *Depressive symptoms*

The Center for Epidemiologic Studies-Depression scale (CES-D; Radloff, 1977) was used to measure depressive symptoms. This 20-item measure uses a four-point response scale, from '1=rarely or none of the time (less than 1 day)' to '4=most or all of the time (5-7 days),' and asks participants to respond to items about how they have felt in the past week. Sample items are: 'I did not enjoy life,' and 'I felt hopeless about the future.' The internal consistency of the measure in the general population is 0.85 (Radloff, 1977), and in this study, it is 0.91.

#### *Optimism*

The Life Orientation Test (Scheier & Carver, 1985) was used to assess trait optimism. Eight items are rated on a five-point scale, ranging from 1 (disagree) to 5 (agree). Example items are: 'I'm always optimistic about my future' and 'In uncertain times, I usually expect the best.' The alpha coefficient for reliability is 0.76 (Scheier & Carver, 1985), and in this study, it is 0.73.

#### *Emotional distress*

We developed a two-part measure to assess the level of emotional distress associated with each participant's

focal problem. The first part was a self-rating by the participant, using a 0–10 scale (0=no emotional distress; 10=extremely significant emotional distress), completed after the first day of writing. The second part consisted of the average rating of two independent raters of the level of emotional distress associated with each participant's problem based on the first day's writing, using the same 0–10 scale. There was a strong correlation between the two raters' scores ( $r=0.86$ ,  $p<0.01$ ) and a moderate correlation between the average of the raters' scores and the self-rating by the participant ( $r=0.37$ ,  $p<0.01$ ). The average of the participant's rating and the average of the raters' scores was used to create the measure of emotional distress.

## Results

### Overview of analyses

Data analyses examined the effects of the three emotion regulation strategies on emotional well-being, indexed both as an increase in positive indicators of emotional well-being and a decrease in negative indicators of emotional well-being. Analyses of each outcome variable examined: (1) within-condition change from pre-intervention to post-intervention; (2) differential pre-intervention to post-intervention change between conditions; and (3) within-condition maintenance of change at 1-week follow-up.

To investigate within-condition change across time (i.e., pre-intervention to post-intervention and post-intervention to follow-up), paired *t*-tests were conducted. To determine the optimal emotion regulation strategy, as well as to examine whether emotional distress moderated differential effects of condition on pre-intervention to post-intervention change in outcome variables, a series of Analysis of Covariance (ANCOVA) were conducted. For each outcome variable, a four-step process was employed to examine the significance of effects, controlling for dispositional optimism and gender.

For step 1, we examined the main effects of condition and emotional distress, as well as their interaction, on post-intervention outcome scores controlling for pre-intervention scores. For step 2, we controlled for the effects of dispositional optimism by examining the 3-way interaction (condition  $\times$  emotional distress  $\times$  dispositional optimism) on all outcome variables at post-intervention after controlling for pre-intervention scores. The model was condensed by removing terms that were not significant in a backward stepwise fashion until only terms that were at least marginally significant ( $p<0.10$ ) remained. For step 3, we conducted identical analyses as in step 2, replacing dispositional optimism with gender. In step 4, we determined the final model for each outcome

variable by beginning analyses with all terms from steps 1, 2, and 3 that were at least marginally significant ( $p<0.10$ ) and then condensing the model by removing terms in a backward stepwise fashion until only significant terms remained<sup>1</sup>. *A priori* planned contrasts examined differences between the acceptance + positive reappraisal and positive reappraisal conditions, as well as differences between the acceptance + positive reappraisal and emotional disclosure conditions. Contrast analyses controlled for the same covariates used in the final model for the relevant outcome variable.

For some outcome variables (Fordyce Emotions Questionnaire, PNMSN, PANASN, and CES-D), strong ceiling or floor effects led to significantly non-normal residuals, violating an assumption of least-squares ANCOVA. For that reason, we conducted ordinal regression analyses on these variables. The ordinal regression analyses employed analogous four-step procedures as in the ANCOVA analyses. The effects of the terms in the models were tested via likelihood ratio test with a chi-squared distribution. For within-condition analyses with these outcome variables, we used the non-parametric analog of a paired *t*-test, the Wilcoxon signed ranks test.

### Predictive analyses

#### *Within-condition pre-intervention to post-intervention change*

Negative emotions and positive emotions decreased significantly from pre-intervention to post-intervention in all conditions. Psychological acceptance, which was associated with particularly robust findings, increased significantly from pre-intervention to post-intervention in the acceptance + positive reappraisal condition and in the positive reappraisal condition, but there were no significant changes in the emotional disclosure condition. There were no within-condition differences between pre-intervention and post-intervention scores in depressive symptoms or happiness. Table 1 presents pre-intervention and post-intervention descriptive statistics for all outcome variables. Table 2 shows results of within-condition analyses between pre-intervention and post-intervention scores.

#### *Between-condition analyses*

*Happiness.* There was a main effect of condition on post-intervention happiness ( $\chi^2(2)=6.89$ ,  $p<0.05$ ). *A priori* planned contrasts indicated that post-intervention happiness in the acceptance + positive reappraisal condition was significantly higher than post-intervention happiness in either the positive reappraisal or emotional disclosure condition ( $\chi^2(1)=4.64$ ,  $p<0.05$ ;  $\chi^2(1)=4.67$ ,  $p<0.05$ ), respectively.

Table 1. Pre-intervention and post-intervention means and SDs (in parentheses) of outcome variables, by writing condition.

Measure	Writing condition					
	Positive reappraisal		Emotional disclosure		Acceptance + positive reappraisal	
	Pre	Post	Pre	Post	Pre	Post
Fordyce	60.41 (19.75)	57.57 (23.00)	61.93 (20.67)	58.49 (19.77)	64.63 (19.59)	64.73 (20.80)
PNMSP	33.42 (8.21)	24.39 (10.03)	33.25 (7.83)	24.10 (9.15)	34.66 (8.23)	27.53 (10.04)
PANASP	32.39 (7.63)	25.43 (8.04)	32.75 (6.88)	24.89 (8.62)	34.04 (7.63)	27.33 (9.19)
PNMSN	22.03 (9.38)	14.17 (7.69)	21.96 (9.21)	14.54 (7.28)	20.34 (8.66)	12.38 (6.61)
PANASN	20.48 (6.94)	14.93 (6.04)	20.55 (6.65)	15.26 (5.35)	20.89 (6.9)	15.09 (5.71)
CESD	12.21 (10.82)	11.67 (10.70)	13.81 (10.38)	12.34 (9.59)	11.38 (9.78)	10.77 (9.36)
AAQ	32.93 (7.39)	32.14 (7.27)	32.64 (6.28)	31.96 (7.22)	33.05 (6.7)	31.69 (7.25)

Notes: Higher AAQ scores indicate lower psychological acceptance. The *n* used for each measure within each condition ranged from 81 to 115.

Table 2. Within-condition pre-intervention to post-intervention analyses.

Measure	Positive reappraisal (df = 82)	Emotional disclosure (df = 88)	Acceptance + positive reappraisal (df = 97)
<i>z</i> scores from Wilcoxon signed ranks tests			
Fordyce	-0.92 <sup>a</sup>	-1.53 <sup>b</sup>	-0.70 <sup>c</sup>
PNMSN	-6.82**	-6.04**	-7.80**
PANASN	-6.34**	-6.46**	-7.12**
CES-D	-1.40	-1.51	-0.75
<i>t</i> scores from paired <i>t</i> -tests			
AAQ	2.17 <sup>b**</sup>	0.96	3.31*
PNMSP	8.5**	7.48**	6.72**
PANASP	7.75**	7.94 <sup>d**</sup>	6.63**

Notes: <sup>a</sup>df = 78, <sup>b</sup>df = 8, <sup>c</sup>df = 93, <sup>d</sup>df = 87.  
\**p* < 0.05, \*\**p* < 0.01.

Figure 1 depicts post-intervention happiness scores after controlling for covariates.

*Positive emotions.* There was a marginally significant effect of condition on post-intervention PNMSP ( $F(2, 266) = 2.78, p = 0.06$ ). *A priori* planned contrasts indicated that post-intervention PNMSP in the acceptance + positive reappraisal condition was significantly higher than PNMSP in either the positive reappraisal condition ( $t(266) = -1.99, p < 0.05$ ) or the emotional disclosure condition ( $t(266) = -2.05, p < 0.05$ ). Figure 2 depicts post-intervention PNMSP scores after controlling for covariates. There were no main effects of condition on post-intervention PANASP ( $F(2, 265) = 1.50, p > 0.10$ ). *A priori* planned contrasts indicated that post-intervention PANASP in the acceptance + positive reappraisal condition was

marginally higher than post-intervention PANASP in the emotional disclosure condition ( $t(265) = -1.72, p = 0.09$ ) but not significantly different than the positive reappraisal condition ( $t(265) = -1.01, p > 0.1$ ).

*Negative emotions.* There was a marginally significant effect of condition on post-intervention PNMSN ( $\chi^2(2) = 5.08, p = 0.08$ ). *A priori* planned contrasts showed that post-intervention PNMSN in the acceptance + positive reappraisal condition was significantly lower than PNMSN in the emotional disclosure condition ( $\chi^2(1) = 5.49, p < 0.05$ ) but was not significantly different than the positive reappraisal condition ( $\chi^2(1) = 0.35, p > 0.1$ ). Figure 3 depicts post-intervention PNMSN scores after controlling for covariates. There were no main effect of condition on PANASN ( $\chi^2(2) = 2.27, p > 0.1$ ).

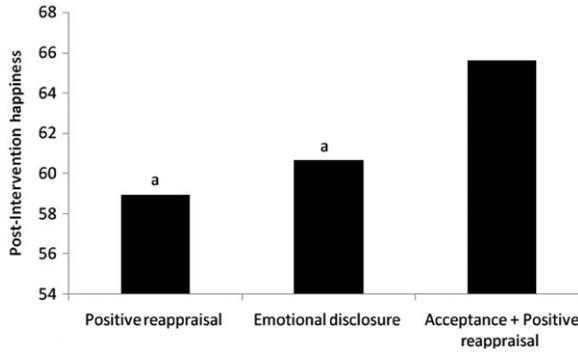


Figure 1. Post-intervention happiness. Notes: <sup>a</sup>indicates significant difference ( $p < 0.05$ ) from acceptance + positive reappraisal condition in post-intervention happiness.

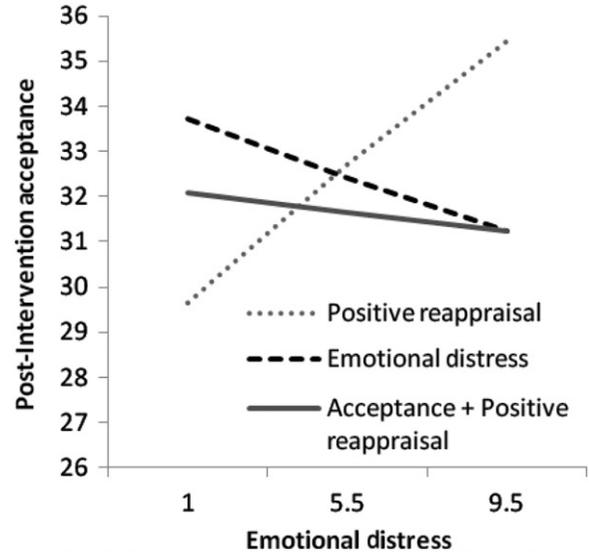


Figure 4. Interaction of condition and emotional distress on post-intervention acceptance. Higher AAQ scores indicate lower psychological acceptance.

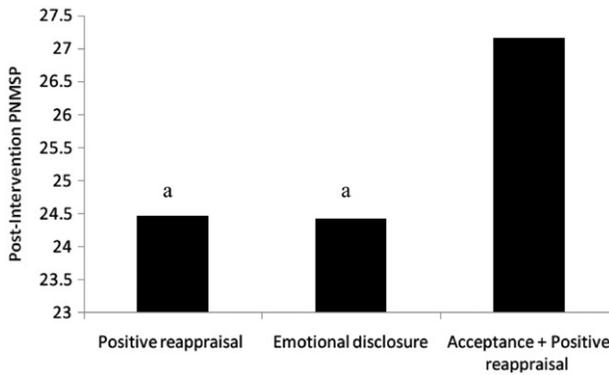


Figure 2. Post-intervention PNMS. Notes: <sup>a</sup>indicates significant difference ( $p < 0.05$ ) from acceptance + positive reappraisal condition in post-intervention PNMS.

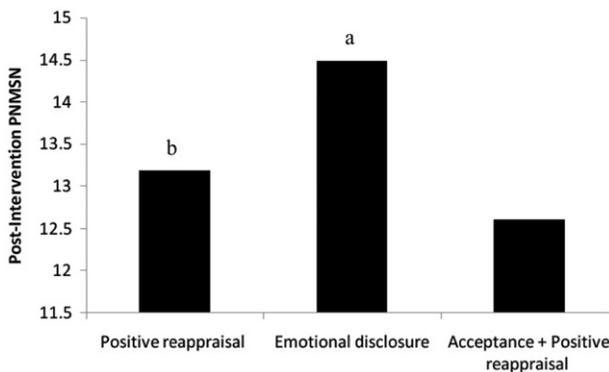


Figure 3. Post-intervention PNMSN. Notes: <sup>a</sup>indicates significant difference ( $p < 0.05$ ) from acceptance + positive reappraisal condition in PNMSN; <sup>b</sup>indicates nonsignificant difference ( $p > 0.10$ ) from acceptance + positive reappraisal condition in PNMSN.

Although the PNMS and PANAS are correlated (ranging from 0.70 to 0.77), the differing effects for the PNMS and PANAS for both positive and negative emotions may be explained partially by recent findings

indicating that the PANAS measures activation more than emotion and, more specifically, that positive affect (PA) as measured by the PANAS includes approach motivation that is negative in valence (Harmon-Jones, Harmon-Jones, Abramson, & Peterson, 2009).

*Psychological acceptance.* There was a significant condition  $\times$  emotional distress interaction for post-intervention psychological acceptance ( $F(2, 261) = 3.75, p < 0.05$ ; Figure 4). Levels of acceptance were stable across levels of emotional distress in the acceptance + positive reappraisal condition, whereas levels of acceptance varied as a function of emotional distress in the other two conditions. At low to high levels of emotional distress, acceptance was greater in the acceptance + positive reappraisal condition than the emotional disclosure condition, but there were no differences between these two conditions at the highest level of emotional distress. Between the acceptance + positive reappraisal condition and positive reappraisal conditions, an opposite pattern was shown. When emotional distress was high, acceptance was higher in the acceptance + positive reappraisal condition than in the positive reappraisal condition, but acceptance was higher in the positive reappraisal condition at low levels of emotional distress. In contrast, levels of acceptance at post-intervention, controlling for pre-intervention, in the acceptance + positive reappraisal condition were stable across all levels of emotional distress<sup>2</sup>. These findings are consistent with the particularly robust findings associated with psychological acceptance and

Table 3. Within-condition post-intervention to follow-up analyses.

Measure	Positive reappraisal (df = 79)	Emotional disclosure (df = 78)	Acceptance + positive reappraisal (df = 87)
<i>z</i> scores from Wilcoxon signed ranks tests			
Fordyce	-2.56 <sup>a</sup> **	-1.54 <sup>b</sup>	-0.37 <sup>c</sup>
PNMSN	-5.43**	-5.85**	-7.29**
PANASN	-5.38**	-6.16**	-6.69**
CES-D	-0.48 <sup>d</sup>	-1.36 <sup>e</sup>	0.29 <sup>f</sup>
<i>t</i> scores from paired <i>t</i> -tests			
AAQ	2.33 <sup>d</sup> *	1.49	2.27*
PNMSP	-7.47**	-7.18**	-5.62**
PANASP	-7.71**	-6.46 <sup>g</sup> **	-6.33**

Note: <sup>a</sup>df = 77; <sup>b</sup>df = 72; <sup>c</sup>df = 85; <sup>d</sup>df = 80; <sup>e</sup>df = 75; <sup>f</sup>df = 86; <sup>g</sup>df = 79; \* $p < 0.05$ ; \*\* $p < 0.01$ .

the acceptance + positive reappraisal condition in within-condition analyses.

*Depressive symptoms.* There was no effect of condition on post-intervention depressive symptoms ( $\chi^2(2) = 1.45, p > 0.1$ ).

#### Moderation analyses

The relationship between writing condition and outcomes did not differ across levels of emotional distress for any emotional well-being variables, except for psychological acceptance. In these analyses, the acceptance + positive reappraisal condition was associated with greater acceptance than the emotional disclosure condition at low to high levels of emotional distress but not at the highest level of emotional distress and was associated with greater acceptance than the positive reappraisal condition when emotional distress was high but lower acceptance when emotional distress was low. Including moderators, for gender and dispositional optimism, did not improve model fit for any analyses, with the relationship between writing condition and emotional well-being consistent across levels of these variables.

#### Follow-up analyses

There were no within-condition differences between post-intervention and 1-week follow-up scores in happiness for the acceptance + positive reappraisal condition or the emotional disclosure conditions, however, happiness did increase significantly in the positive reappraisal condition. Positive and negative emotions increased from post-intervention to follow-up in all conditions. There were no within-condition differences between post-intervention and follow-up scores in depressive symptoms. At 1-week follow-up, psychological acceptance was significantly higher than at post-intervention in the acceptance + positive

reappraisal and positive reappraisal conditions. There were no within-condition differences between post-intervention and follow-up scores in acceptance for the emotional disclosure condition (Table 3).

#### Discussion

Negative emotions have been relegated to a backseat role in the study of happiness. In an effort to examine the untapped potential of negative emotions in fostering happiness, we hypothesized that an optimal way to regulate negative emotions might be by accepting them, followed by making direct efforts to seek out positive aspects of the problem. To test the efficacy of a strategy combining acceptance of one's negative emotions with efforts to identify positive aspects of the problem, we pitted it against two established paradigms, emotional disclosure and positive reappraisal, that have been shown to foster psychological well-being (Gross & John, 2003; Pennebaker, 1997).

Findings showed that although happiness did not change significantly from pre-intervention to post-intervention for any of the three approaches to regulating negative emotions, happiness at the end of the experiment, controlling for baseline happiness, was highest for participants who integrated acceptance of their negative emotions and positive reappraisal. Although findings relating to positive and negative emotion outcomes were not consistent across the two affect measures, the significant effects that were observed revealed compelling group differences. Positive emotions decreased significantly from pre- to post-intervention for participants in all three groups but decreased least for those who integrated acceptance and positive reappraisal. Similarly, negative emotions decreased for participants in all three groups but decreased significantly more for participants integrating acceptance and positive reappraisal than for participants using a strategy of emotional

disclosure alone. Although depressive symptoms decreased in all conditions, change was not significant, and there were no significant differences among groups in post-intervention depressive symptoms. Differences among groups in emotional well-being from pre-intervention to post-intervention held irrespective of emotional distress, gender, and dispositional optimism for all outcomes except for psychological acceptance, for which emotional distress moderated the relationship between acceptance at post-intervention and emotion regulation strategy.

Specifically, psychological acceptance increased from pre-intervention to post-intervention for participants who approached their problem with a combination of acceptance and positive reappraisal and for participants who used positive reappraisal alone. The impact of emotion regulation strategy on psychological acceptance post-intervention, controlling for pre-intervention, was moderated by participants' level of emotional distress. Whereas levels of acceptance at post-intervention were stable across levels of emotional distress for participants who integrated acceptance and positive reappraisal, levels of acceptance varied as a function of emotional distress for participants using other strategies. At low to high levels of emotional distress, acceptance was greater among participants who integrated acceptance and positive reappraisal than among those who used a strategy of emotional disclosure alone, but there were no differences between these two groups of participants at the highest level of emotional distress. In contrast, at higher levels of emotional distress, acceptance at post-intervention, controlling for pre-intervention, was higher among participants who integrated acceptance and positive reappraisal than those who used a strategy of positive reappraisal alone. Acceptance was higher, however, for those who used positive reappraisal alone at low levels of emotional distress. This finding suggests that the effectiveness of positive reappraisal used alone is vulnerable to increasing emotional distress. In contrast, levels of acceptance at post-intervention, controlling for pre-intervention, for participants who integrated acceptance and positive reappraisal, were stable across all levels of emotional distress. In addition, psychological acceptance continued to increase from post-intervention to follow-up for participants who integrated acceptance and positive reappraisal, as well as those who used a strategy of positive reappraisal alone.

This significant increase in psychological acceptance is particularly meaningful because psychological acceptance has been associated with general mental health (Donaldson-Felder & Bond, 2004) as well as workplace well-being and performance (Bond & Bunce, 2003). For example, clinical studies have shown that Jon Kabat-Zinn's mindfulness-based stress reduction intervention is associated with greater

emotional well-being for individuals coping with stressful life experiences such as cancer (Kieviet-stijnen, Visser, Garssen, & Hudig, 2008), HIV/AIDS (Logsdon-Conradsen, 2002), and chronic pain (Sagula & Rice, 2004). Similarly, current models of recovery from trauma contend that post-traumatic growth necessitates an openness to confronting and experiencing negative thoughts and emotions associated with the traumatic experience (Batten, Orsillo, & Walsler, 2005; Kashdan, Breen, & Julian, 2010; Kashdan & Kane, 2011).

The benefits of acceptance, however, may be optimized when followed by an active attempt to seek out positive aspects of the problem or ways to grow from the problem. The added value of specifically instructing people to write about the negative emotions associated with the problem, demonstrated in this study, may imply that people need to be given, and ultimately to give themselves, permission to experience negative emotions (Ben-Shahar, 2007). The value of being prompted, subsequently, to engage in benefit-finding may indicate that after facing negative feelings, we might need a nudge to seek out positive aspects of a problem.

Participants' written feedback after the experiment provided further evidence that this combination of first accepting the negative emotions associated with a problem and then seeking out possible positive consequences was beneficial. For instance, one participant in the acceptance + positive reappraisal condition wrote: '[The writing] gave me a chance to release myself of some negative energy that I hadn't let out until I started writing. And when I got to write about the positive side of my problem, I felt better, I started thinking about optimistic things that I hadn't thought of before.' In contrast, a participant in the positive reappraisal condition wrote the following: 'I would...like to write about negative aspects of my problem as well. It would have been a way for to me share what I have bottled. Share what I was afraid would or could be the outcome then compare both negatives and positives.' In addition, in pilot analyses, one individual succinctly stated: 'If you are trying to increase happiness, then I would want to write negatively first. This way I could vent my frustrations then look at the good side.'

Nevertheless, a limitation of this study design is that the success of the combined approach, integrating acceptance and positive reappraisal, could be due to the fact it represents two separate novel approaches rather than the specific combination of negative-to-positive emotional processing. For example, Sin and Lyubomirsky (2009) found in a recent meta-analysis of positive psychology interventions that 'shot-gun approaches,' using several different techniques, were better than single approaches. In addition, past research on positive psychology interventions has

suggested that variety may be an important moderator, leading to enhanced emotional well-being outcomes (Lyubomirsky & Della Porta, 2010).

Taken together, these results indicate that emotional well-being tends to be enhanced for people who approach their emotions about their biggest problems with a combination of acceptance and positive reappraisal. Results from this study indicate that allowing ourselves to experience negative emotions may, in fact, weaken them, leading not only to relatively fewer negative emotions but also to relatively greater positive emotions, happiness, and psychological acceptance. In addition, the fact that a key part of this findings relate to the outcome of psychological acceptance underscores the value of using broader definitions of happiness, such as eudaimonic measures (e.g., purpose in life; Ryff, 1989), in empirical research. Whereas these findings may contradict the message of Johnny Mercer, they echo a sentiment expressed by contemporary author Jonathan Safran Foer (2005, p. 180) when he wrote: 'You cannot protect yourself from sadness without protecting yourself from happiness.' In sum, when confronting life's problems, accepting one's negative emotions and trying to seek out the positives might be an optimal strategy for building and enriching happiness.

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### Notes

1. Emotional distress was included as a covariate in the final models for the analyses examining happiness, PANASN and depression as outcome variables. Gender was included as a covariate in the final model for the analyses including acceptance as the outcome variable.
2. We also tested to see if psychological acceptance mediated the relationship between condition and post-intervention happiness (Fordyce Emotions Questionnaire), using steps outlined by Baron and Kenny (1986), and acceptance was not a mediator.

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## Appendix

### *Instructions for writing conditions*

#### *Appendix for emotional disclosure condition*

For the next few minutes we would like you to write about the biggest problem or most difficult challenge you are having in your life right now. Write about the problem in as much detail as you can. Really get into it and freely express any and all emotions or thoughts that you have about the experience. As you write, do not worry about punctuation or grammar, just really let go and write as much as you can about the problem.

#### *Appendix for positive reappraisal condition*

Please think of the biggest problem or most difficult challenge you are having in your life right now. Think about it for a few moments. Now, focus on the positive aspects of this problem and on positive things that might end up happening because of this problem. Really get into it and try to imagine all of the positive things that could come from this problem. Please write about these positive aspects of the problem and the positive things that could come from the problem. Please write ONLY about the positive. Please DO NOT write about any negative feelings or consequences. Write about the positive aspects of the problem and the positive things that could come from the problem in as much detail as you can, and please write without stopping for the entire 20 min. As you write, do not worry about punctuation or grammar, just really get into it, and write as much as you can about the positive things that could come from the biggest problem you are having in your life right now.

#### *Appendix for acceptance + positive reappraisal condition: days 1 and 2*

You will be writing about the following topic for the first two days of the writing experiment. Please think of the biggest problem or most difficult challenge you are having in your life right now. Think about it for a few moments. Now, focus on the painful or negative feelings you have that are related

to the problem. Really get into it and allow yourself to explore the most painful feelings associated with the issue. Try to accept them and not to push them away. Please write about these negative feelings you have that stem from the problem. Please write ONLY about the negative feelings. Please DO NOT write about any positive things that could come from the problem. Write about the painful feelings you have because of the problem in as much detail as you can, and please write without stopping for the entire 20 min. As you write, do not worry about punctuation or grammar, just really let go, and write as much as you can about the negative feelings that you have in relation to the biggest problem you are having in your life right now.

On the third and fourth days of the writing experiment, you will be writing about positive things that could come from your problem, so please ONLY write about the negative feelings you have because of the problem right now.

#### *Appendix for acceptance + positive reappraisal condition: days 3 and 4*

You will be writing about the following topic for the last 2 days of the writing experiment. Please think of the biggest problem or most difficult challenge you are having in your life right now. Think about it for a few moments. Now, focus on the positive aspects of this problem and on positive things that might end up happening because of this problem. Really get into it and try to imagine all of the positive things that could come from this problem. Please write about these positive aspects of the problem and the positive things that could come from the problem. Please write ONLY about the positive. Please DO NOT write about any negative feelings or consequences. Write about the positive aspects of the problem and the positive things that could come from the problem in as much detail as you can, and please write without stopping for the entire 20 min. As you write, do not worry about punctuation or grammar, just really get into it, and write as much as you can about the positive things that could come from the biggest problem you are having in your life right now.