

## **“UNDOING” EFFECTS OF POSITIVE AFFECT: DOES IT BUFFER THE EFFECTS OF NEGATIVE AFFECT IN PREDICTING CHANGES IN DEPRESSION?**

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The present two studies tested whether positive affect buffers the effects of negative affect on changes in depressive symptoms. Consistent with this undoing hypothesis, results of Study 1 confirmed that baseline trait positive affect buffered the effect of baseline trait negative affect on gains in depression symptoms six weeks later. Trait negative affect predicted gains in depressive symptoms when positive affect was low, but had little impact on later depressive symptoms when positive affect was high. Importantly, a beneficial effect of trait positive affect was only found at higher levels of trait negative affect. The second study sought to extend these findings using a measure of positive and negative life events over the past year rather than trait affect. The second study found that positive events in the previous year were seemingly protective when in the presence of negative events, but paradoxically predicted increased depression under conditions of few negative events. Thus, positive events appeared to function as both a risk and a resilience factor, consistent with similar evidence (Shahar, Elad-Strenger, & Henrich, 2012). As predicted, positive affective experiences had no evident moderating effects in either study on predicting changes in anxiety.

Although considerable research has shown that low levels of positive affect are associated with depression, there has been little attention to whether positive affect has a protective role in depression

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over time. It has also been amply demonstrated that low positive affect seems to distinguish depression from anxiety while negative affect is associated with both depression and anxiety. According to common factor theorists the high negative affect that depression and anxiety share accounts for their high intercorrelations (Clark & Watson, 1991; Mineka, Watson, & Clark, 1998; Watson, Clark, & Tellegen, 1988). Moreover, low positive affect seems to represent a distinct feature of depression, much like heightened arousal represents a distinct feature of anxiety (Watson, Clark, & Carey, 1988). Much like research on affect, research on cognitive factors provides further hints about the differential role played by negative and positive affective experiences in depression and anxiety. For example, depression and anxiety are both associated with increased negative expectations and predictions of future negative outcomes, while only depression is associated with decreases in positive expectations and predictions (Beck, Wenzel, Riskind, Brown, & Steer, 2006; MacLeod & Byrne, 1996; Miranda, Fontes, & Marroquin, 2008).

Other research on life events has shown that negative life events appear to occur at elevated rates in depression (Paykel, 1994). Such findings are consistent with the assumption that negative events can constitute factors that precipitate or intensify depression, although there is evidence that some of these negative events are self-generated negative life events (Daley et al., 1997; Hammen, 1991; Safford, Alloy, Abramson, & Crossfield, 2007). Studies have shown that decreased rates of positive events are associated with depression, but the evidence on positive events is mixed (Shahar & Priel, 2002). Some studies suggest positive events confer resiliency to depression (Needles & Abramson, 1990; Paykel, 1994; Shahar & Priel, 2002) while other studies show no effects or even an increase in depression (Cohen, McGowan, Fooskas, & Rose, 1984; Davidson, Shahar, Lawless, Sells, & Tondora, 2006).

Research in the area of health psychology provides further reason to expect further support that positive affect has a protective effect on depression. Frederickson's (1998) undoing hypothesis argues that positive affect protects an individual's physical health from the harmful influence of negative affect (or stress, in Frederickson's terms) on health. Further, Frederickson hypothesized that positive affect lacks benefit for physical health aside from buffering the impact of negative affect. In line with the undoing hypothesis, research has shown that positive affect buffers the detrimental impact that stress has on cardiovascular health, blood pressure, and

other medical health problems (Brummett, Boyle, Kuhn, Siegler, & Williams, 2009; Ong & Allaire, 2005; Tugade, Fredrickson, & Barrett, 2004). In the absence of stress, positive affect does not have beneficial effects on such health outcomes. (Folkman & Moskowitz, 2000; Reich & Zautra, 1981; Zautra, Reich, & Guarnaccia, 1990). To date, however, there appear to be no studies that have examined the “undoing hypothesis” in relation to depression.

## THE PRESENT RESEARCH

In the present studies, we sought to examine the hypothesis that positive affect buffers the effect of negative affect on changes in depressive symptoms over time. Specifically, we expected that positive affect might be protective for individuals whose initial levels of negative affect are high. However, positive affect would have less beneficial impact on changes in such symptoms for individuals if their initial level of negative affect is low. In the light of the specificity of the link of low positive affect to depression, we also expected that the buffering effects of positive affect are especially related to increases in depression symptoms and they are less closely related to anxiety.

To test these hypotheses, we conducted two short-term prospective studies using undergraduate students. In the first study we examined whether baseline trait positive affect buffered the effect of baseline negative affect on gains in depression symptoms six weeks later. We expected that negative affect would predict increased depression symptoms under low levels of trait positive affect but little impact on such symptoms under high levels of trait positive affect. Further, we expected that one of the main functions of positive affect with regard to depression is to buffer negative effect. Thus, we expected that trait positive affect would have little effect on depression under low trait negative affect.

We extended these findings in Study 2 using a measure of positive and negative life events rather than the affect measures. We expected the same moderating effects of positive events on changes in depression, but not anxiety, six weeks later as we did for trait positive affect. This hypothesis is not strictly a test of Frederickson’s model for two reasons. First, Frederickson has not sought to apply the “undoing” model to depression and its differentiation from anxiety. Second, we are not presently looking at immediate, situ-

ationally induced states of affect but looking at a more distal affect traits or life events that would be expected to impact individuals' affect states.

## **STUDY 1: DOES POSITIVE AFFECT MODERATE THE EFFECT OF NEGATIVE AFFECT IN PREDICTING CHANGES IN DEPRESSION?**

### **METHOD**

#### **Participants**

Undergraduate students from a large, ethnically diverse university ( $n = 99$ , 62% female) volunteered to participate in the research in return for extra course credit. Their ages ranged from 18 to 51 ( $M = 21.9$  years).

#### **Procedure**

Assembled in groups of 30 to 40, participants completed a battery of questionnaires including measures of depression symptoms, anxiety symptoms, and affect (Time 1). Six weeks later (Time 2), the participants returned and completed the measures of depression and anxiety again.

#### **Measures**

*Depression and Anxiety Symptoms.* Depression symptoms were measured using the Beck Depression Inventory (BDI; Beck, Steer, & Carbin, 1988)— a reliable and valid instrument that is used widely as an index of depression in research. Anxiety was measured using Beck Anxiety Inventory (BAI; Beck, Epstein, Brown, & Steer, 1988) which is a 21-item self-report measure of symptoms of anxiety. Both measures have 21 items and scores on can range from 0 to 63.

*Positive and Negative Affect.* Affect was measured by the trait version of the Positive and Negative Affect Schedule (PANAS; Watson, Clark, & Tellegen, 1988). The PANAS consists of 2 sets of 10 adjectives, one set measuring positive affect (e.g., interest, enthusiasm), and the other negative affect (e.g., nervous, scared). The two result-

TABLE 1. Means, Standard Deviations, and Intercorrelations Among the Study Variables

	1	2	3	4	5	6
1. T1 Depression (BDI)	—					
2. T1 Anxiety (BAI)	.37***	—				
3. T2 Depression (BDI)	.56***	.35***	—			
4. T2 Anxiety (BAI)	.41***	.58***	.55***	—		
5. T1 Positive Affect (PA)	-.56***	-.10	-.48***	-.20**	—	
6. T1 Negative Affect (NA)	.39***	.38***	.63***	.53***	-.35***	—
M	7.83	0.55	5.85	0.46	3.47	1.98
SD	5.80	0.33	5.54	0.36	0.63	0.69

Note. T1 = Time 1; T2 = Time 2, BDI = Beck Depression Inventory; BAI = Beck Anxiety Inventory; PA = PANAS Positive Affect; NA = PANAS Negative Affect; SD = Standard deviations.

\*  $p < .05$ ; \*\*  $p < .01$ ; \*\*\*  $p < .001$ .

ing scores are only moderately correlated with each other,  $r = -.17$ , and exhibit test-retest reliability of .70 over an eight-week period.

RESULTS

Means, standard deviations, and intercorrelations between the study variables are presented in Table 1. Depression and anxiety correlated with negative affect ( $r = .49$  and  $r = .44$ ,  $p < .001$ ; respectively) as well as with each other ( $r = .37$ ,  $p < .001$ ). Positive Affect was negatively correlated with Depression ( $r = -.56$ ,  $p < .001$ ), but not anxiety ( $r = -.11$ , ns). Furthermore, all measures had acceptable reliability (alphas ranging from .81 to .92).

Our primary hypothesis was that positive affect would buffer the impact of negative affect on the development of depression symptoms. Thus, we predicted an interaction effect between positive and negative affect predicting changes in depression over time. To test this hypothesis, a hierarchical multiple regression analysis was conducted to determine the separate and conjoint effects of positive and negative affect in predicting changes in depression. PANAS scores were centered prior to calculating the interaction terms to facilitate the interpretability of the interaction (Aiken & West, 1991). As detailed in Table 2, the results were consistent with our hypothesis. In this hierarchical multiple regression analysis, Time 2 depression symptoms were regressed onto T1 levels of depression and anxiety

symptoms (block 1), time 1 levels of positive and negative affect (block 2) and the interaction between positive and negative affect (block 3). The findings showed a significant interaction effect between positive affect and negative affect in predicting changes in depression ( $b = -0.23$ ,  $se\ b = 0.08$ ,  $p < .01$ ).

Figure 1 shows the pattern of this interaction between positive and negative affect, probed based on recommendations put forth by Aiken and West (1991). In line with our hypothesis, negative affect was not predictive of increases in depression at high levels of positive affects (standardized simple slope = 1.47,  $p = .11$ ). However, there was a strong relationship between negative affect and changes in depression when positive affect was at low levels (standardized simple slope = 1.96,  $p < .05$ ). These findings are consistent with the hypothesis that positive affect functions as a buffer against the effect of negative affect on the progression of depression symptoms. Figure 1 shows the association between T1 negative affect and T2 depression symptoms, corrected for T1 depression symptoms, presented as a function of high vs. low levels (1SD above and below the mean) of positive affect.

### Specificity in the Test of the Interaction for Anxiety

As also detailed by the results in Table 2, the interaction between positive and negative affect was not predictive of changes in anxiety ( $b = -0.11$ ,  $se\ b = 0.08$ ,  $p = ns$ ). Thus, these results are in accord with the assumption that the buffering role of positive affect is more closely related to the progression of symptoms of depression than to anxiety.

## STUDY 2: DO POSITIVE EVENTS BUFFER THE IMPACTS OF NEGATIVE EVENTS ON CHANGES IN DEPRESSION?

Past research has shown that positive events and negative events induce corresponding positive and negative affect (Reich & Zautra, 1981). Our primary hypothesis in Study 2 was that positive events would buffer the impact of negative events on depression symptoms. Thus, we predicted an interaction effect between positive events and negative events in predicting changes in depression symptoms over time. Moreover, we predicted that the interaction effect would be less closely related to changes in anxiety.

TABLE 2. Results of Hierarchical Multiple Regression Analysis

	DV: Depression (BDI) Time 2			DV: Anxiety (BAI) Time 2		
	<i>B</i>	<i>SE B</i>	<i>t</i>	<i>B</i>	<i>SE B</i>	<i>t</i>
Block 1						
T1 Depression (BDI)	0.26**	0.01	5.05	0.16	0.10	1.68
T1 Anxiety (BAI)	0.08	0.08	0.81	0.39***	0.08	4.80
Block 2						
T1 Positive Affect (PA)	-0.22*	0.09	0.31	0.10	0.09	1.12
T1 Negative Affect (NA)	0.29***	0.09	0.30	0.30***	0.09	3.56
Block 3						
PA*NA	-0.23**	0.08	-3.59	-0.11	0.08	-1.50

Note. T1 = Time 1; T2 = Time 2, BDI = Beck Depression Inventory; BAI = Beck Anxiety Inventory; PA = PANAS Positive Affect; NA = PANAS Negative Affect. \* $p < .05$ ; \*\* $p < .01$ ; \*\*\* $p < .001$ .

## METHOD

### Participants

Undergraduate students from a large, diverse university ( $n = 107$ , 60% female) volunteered to participate in the research in return for extra course credit. Their ages ranged from 18 to 39 ( $M = 19.3$  years).

### Procedure

Study 2 was similar in procedure to the previous study except that assessed life events rather than self-reported affect. The study also used the Spielberger State/Trait Anxiety Inventory (STAI) instead of the BAI to measure anxiety. A 6-week time interval and a group-administered format were used in this study.

### Measures

*Anxiety.* The state anxiety scale of the Spielberger State/Trait Inventory (STAI; Spielberger, Gorsuch, Lushene, Vagg, & Jacobs, 1970) assesses anxiety at the time of test taking, and the Trait Anxiety scale assesses anxiety as generally experienced. Tanaka-Matsumi & Kameoka (1986) report evidence on the reliability and validity of the scale.

*Life Events.* Life events were assessed with the modified Psychiatric Epidemiology Research Instrument (PERI; Hammen, Mayol, De-

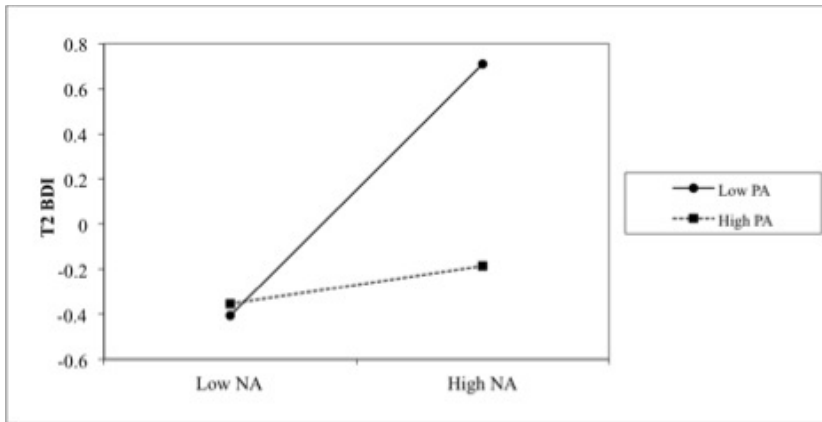


FIGURE 1. Associations between NA and T2 Depression as a function of High and Low Levels of PA

Mayo, & Marks, 1986). The PERI is a 120 item measure that is a modification of the measure developed by Dohrenwend, Askenasy, Krasnoff, & Dohrenwend (1978) with additional items to adapt it for college students. The students indicated on a checklist which of a series of life events—such as death of an immediate family member—they had experienced over the past year as well as the impact of these events. Results were similar for incidence and impact scores, thus only incidence scores are reported.

## RESULTS

Means, standard deviations and intercorrelations between the study variables are presented in Table 3. Negative life events significantly correlated with T1 depression symptoms ( $r = .42, p < .001$ ). Negative and positive life events correlated with T1 trait anxiety ( $r = .27, p < .01$ ;  $r = .30, p < .001$ , respectively). Depression symptoms and trait anxiety evinced a high stability over time ( $r = .61, p < .001$  and  $.69, p < .001$ ; respectively). The scores for number of negative events and for positive events were uncorrelated ( $r = -.09, ns$ ), further supporting literature arguing they should be distinguished. As in the previous study, all measures had acceptable reliability (alphas ranging from .86 to .89).



**TABLE 3. Means, Standard Deviations, and Intercorrelations Among the Study Variables**

	1	2	3	4	5	6	7	8
1. T1 Depression (BDI)	—							
2. T1 Trait Anxiety (STAI-T)	.48***	—						
3. T1 State Anxiety (STAI-S)	-.14	.57***	—					
4. T2 Depression (BDI)	.62***	.37***	.02	—				
5. T2 Trait Anxiety (STAI-T)	.61***	.69***	.57***	.48***	—			
6. T2 State Anxiety (STAI-S)	.02	.54***	.28**	.09	.81***	—		
7. Positive Events (PERI-Pos.)	.10	.27**	.19*	.25***	.19*	.08	—	
8. Negative Events (PERI-Neg.)	.42***	.30***	-.12	.20*	.20*	-.06	.01	—
<i>M</i>	10.80	47.31	44.25	8.84	45.34	46.75	7.03	12.82
<i>SD</i>	7.49	5.46	5.92	8.63	5.83	6.70	4.21	9.23

Note. T1 = Time 1; T2 = Time 2, BDI = Beck Depression Inventory; STAI-T = Spielberger State-Trait Anxiety Inventory-Trait Subscale; STAI-S = Spielberger State-Trait Anxiety Inventory-State Subscale; PERI-Pos/neg = Sum of Positive/Negative Events on the PERI-LES = Means.

\* $p < .05$ ; \*\* $p < .01$ ; \*\*\* $p < .001$ .

### Hierarchical Regression Analysis

Our primary hypothesis was that positive events would buffer the impact of negative events on the development of depression symptoms. To test this hypothesis, a hierarchical multiple regression analysis was conducted in which Time 2 (T2) depression symptoms were regressed onto T1 levels of depression and anxiety symptoms (block 1), T1 levels of positive and negative events (block 2) and the interaction between positive and negative events (block 3). Positive and negative life event scores were centered prior to calculating the interaction (Aiken & West, 1991). As can be seen from Table 4, the hierarchical multiple regression analysis produced a significant interaction between positive events and negative events to predict changes in depression, controlling for initial levels of depression and the main effects of positive and negative events ( $b = -0.39$ ,  $se\ b = 0.11$ ,  $p < .001$ ).

Figure 2 shows the association between T1 negative events and T2 depression symptoms, corrected for T1 depression symptoms, presented as a function of high vs. low levels (1SD above and below the mean) of positive events. As Figure 2 shows, the results were consistent with expectations at low levels of positive events, indicating that increases in negative events predicted increased depres-

TABLE 4. Results of Hierarchical Multiple Regression Analysis

	Depression Symptoms (BDI) Time 2			State Anxiety (STAI-S) Time 2			Trait Anxiety (STAI-T) Time 2		
	<i>B</i>	<i>SE B</i>	<i>t</i>	<i>B</i>	<i>SE B</i>	<i>t</i>	<i>B</i>	<i>SE B</i>	<i>t</i>
Block 1									
T1 Depression (BDI)	0.52***	0.09	5.05	0.08	0.11	4.96	0.41***	0.08	0.74
T1 Anxiety (STAI)	0.07	0.08	0.81	0.28**	0.10	6.82	0.54***	0.08	2.73
Block 2									
Neg. Events (PERI)	0.06	0.11	0.31	-0.09	0.15	-1.63	-0.17	0.10	-0.59
Pos. Events (PERI)	0.03	0.09	0.30	0.03	0.11	-0.12	-0.01	0.08	0.26
Block 3									
POS*NEG	-0.39***	0.11	-3.59	0.03	0.14	-0.40	-0.04	0.10	0.18

Notes. BDI = Beck Depression Inventory STAI-T = Spielberger State-Trait Anxiety Inventory-Trait Subscale, STAI-S = Spielberger State-Trait Anxiety Inventory-State Subscale, Number of Neg/Pos Events = Sum of Pos/Neg Events on the PERI-LES.  
\* $p < .05$ ; \*\* $p < .01$ ; \*\*\* $p < .001$ .

sion (standardized simple slope = 0.41,  $p < .05$ ). But surprisingly, at high levels of positive events the opposite was found. Namely, depression increased more when negative events were not present (standardized simple slope = -0.30,  $p < .05$ ). Thus, positive events in the past year seemed to have a buffering function and increased resilience when negative events were high, but seemed to have a surprisingly negative impact on depression symptom changes when negative events were not present.

In a further analysis, we probed the relationship between positive and negative events using an online calculator (Preacher, Curran, & Bauer, 2006) to determine what level of positive life events were required to interact with negative life events to predict the significant changes in depression symptoms. This analysis revealed that positive events only had effects on depression changes when approximately 2.9 positive events were present in the past year but had no effect when there were fewer positive events. Thus, this was the number of positive events that were necessary to either buffer depression when negative events were present, or create depression when negative events were not present. Approximately 26% of the sample reported 2.9 or more positive events.

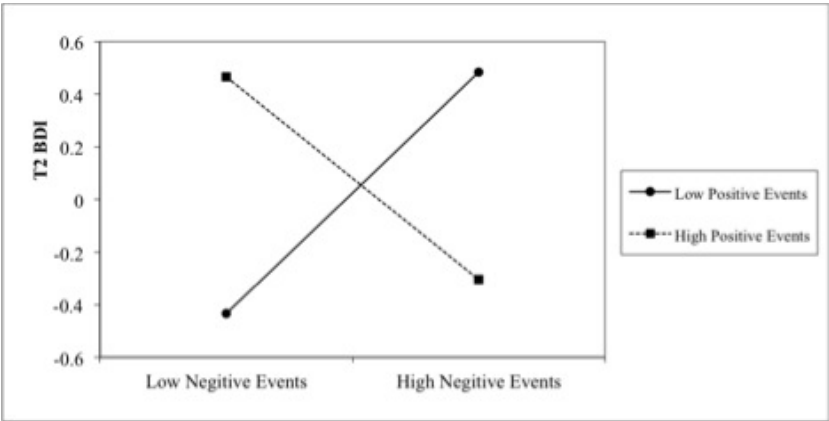


FIGURE 2. Associations between Positive Life Events and T2 Depression as a function of Negative Events

Specificity in the Test of the Interaction for Anxiety

Once more, we expected that the interaction between positive events and negative events would be less closely related to the prediction of changes in anxiety. In Table 2 we also present the results for anxiety. Consistent with the results of Study 1, the interaction between positive events and negative events does not significantly predict residual changes in anxiety.

DISCUSSION

Consistent with the hypothesis in Study 1, we found an interaction indicating that baseline trait positive affect buffers individuals from the impact of baseline trait negative affect on changes in depression symptoms over time. In specific, trait negative affect predicted gains in depression symptoms when trait positive affect was low but had little impact on such symptoms when it was high. We further found that the beneficial effect of trait positive affect was primarily in buffering the impact of trait negative affect and it did not prove beneficial in its absence. Finally, we found that the same mod-

erating effect of trait positive affect was not evident in the prediction of changes in anxiety.

The second study sought to extend these findings using a measure of positive and negative life events over the past year rather than trait affect, but an analogous moderation effect was not evident. Positive events seemed to have a buffering function and increased resilience when negative events were high, but their impact was surprisingly negative when negative events were not present.

Individuals who had few negative events and the most positive events seemed to be at far greater (rather than lower) risk for increased depression.

What could account for these surprising differences? First, note that Study 1 had examined trait positive affect while Study 2 examined the effects of positive events that might only create transient states of positive affect. Regarding this, researchers have shown that even major positive events such as winning a lottery can increase happiness only for a short duration, after which mood reverts to preexisting levels (Brickman, Coates, & Janoff-Bulman, 1978; Myers & Diener, 1995). According to the hedonic treadmill theory, even extremely positive or negative events do not have lasting effects on mood or happiness because individuals quickly adapt and return to a relatively stable set-point (Brickman, Coates, & Janoff-Bulman, 1978). As a result, any uplifting effects of positive events could be expected to fade with time. This would be particularly likely to occur in the present study where the positive events may have occurred up to a year previously. Additionally, once individuals have adapted to positive events the subsequent events may not measure up, thus causing them to feel let down or depressed.

Coupled with this, researchers have found evidence that positive events can involve life changes and represent a source of stress and negative affect in their own right that could contribute to depression (Holmes & Rahe, 1967). Similarly, Brown & McGill (1989) argued that positive events create stress by placing individuals into new circumstances such as getting married or taking on a new job that require stressful adjustments and precipitate instabilities in individuals' self-concepts. For example, positive events may force them to "abandon extant identities" (such as abandoning the identity of a student when one graduates from college).

Such views are in line with the Shahrar and Priel (Priel & Shahrar, 2000; Shahrar & Priel, 2002) suggestion that positive events can

have both positive and negative effects on mood. For example, they suggested that positive events can protect individuals from emotional distress because of their positive valence, but create distress because they bring novelty, change, and uncertainty. More recently, Shahar, Elad-Strenger, and Henrich (2012) formulated a theoretical analysis that proposes that any factor, such as positive events (or coping styles, self-concept clarity) implicated in risk is also implicated in resilience, and vice versa. **Thus, the present findings seem to provide support for their suggestion that positive events or other factors can create risk and/or resilience depending on the larger context in which they are embedded.**

It is plausible that positive events are primarily beneficial under conditions in which negative events are present. For example, Baumeister's (Baumeister, Bratslavsky, Muraven, & Tice, 1998; Gailliot, Schmeichel, & Baumeister, 2006; Vohs, Baumeister, & Ciarocco, 2005) ego-depletion model of self-regulation proposes that prolonged exposure to stressful events can deplete coping resources. Meanwhile, positive affect after stress exposure may have restorative effects that help to renew self-control resources (Tice, Baumeister, Shmueli, & Muraven, 2007) that serve to buffer individuals from depression. This interpretation dovetails with Frederickson's undoing hypothesis, which predicts that positive events may not have such beneficial effects in the absence of stress evoked by negative events (Frederickson & Losada, 2005). However, it should be noted that the present reasoning goes beyond the undoing hypothesis by suggesting, in line with Shahar et al. (2012), Holmes and Rahe (1967), Brown and McGill (1989), and others that positive events may not just have minimal positive impact but have a decidedly detrimental impact on later moods in circumstances where there are no stresses to contend with.

Past research has supported Frederickson's undoing hypothesis (Frederickson & Losada, 2005) that positive affect helps to undo the effects of negative affect on physical health. On a similar note, this present data suggest that it can also have a similar protective effect on depression symptoms. **It is noteworthy that Study 2 found that the ratio of positive events required to optimally buffer negative events is 2.9:1, which is the so-called Losada Ratio** (Losada & Heaphy, 2004). The 2.9:1 positive to negative event ratio has been found to be the minimum ratio of positive to negative events to optimally buffer the effects of negative events on cardiovascular

health in Fredrickson's undoing hypothesis (Fredrickson & Losada, 2005). Thus, the present study confirms and extends these findings by demonstrating that a 2.9:1 positive to negative ratio is the minimum level at which positive events buffer the effects of negative events in depression.

The Losada Ratio also fits with Baumeister and colleagues' (Baumeister, Bratslavsky, Finkenauer, & Vohs, 2001) proposal that "bad is stronger than good." Reviewing multiple research literatures, Baumeister et al. argue that people are predisposed to focus on the negative and avoid loss, while placing less value on positive events and gains (see also, Kahneman & Tversky, 1984). Further, they propose that individuals tend to compare their current state to their past, more fortunate state after negative events, but don't tend to reflect on their past, less fortunate state after positive events (Brickman et al., 1978). This could explain why it may take almost a 3:1 ratio of positive events to outweigh the detrimental effects of negative events on depression and physical health.

As hypothesized, we found that interaction effects of positive and negative affect (and events) were predictive of changes in depression but not anxiety. These findings were obtained with two different measures of anxiety, the Beck Anxiety Inventory in Study 1, and the State and Trait Anxiety Inventories in Study 2. These findings lend support to the assumption that positive affect has a more important buffering role for depression than anxiety because low positive affect is more closely related to depression than anxiety (Clark & Watson, 1991; Zinbarg & Barlow, 1996). However, one caveat is that low positive affect has also been shown to be associated with social anxiety (Brown, Chorpita, & Barlow, 1998; Kashdan & Roberts, 2004) and we did not include assessments of social anxiety symptoms. Nonetheless, the present findings provide evidence that positive and negative affect and events interact in the prediction of changes in depression, but not anxiety, symptoms.

Finally, two methodological strengths of both studies are that they used prospective (rather than cross-sectional) designs with relatively large and diverse (rather than ethnically and culturally homogeneous) samples. Nevertheless, several limitations of the studies must be acknowledged. First, because the studies relied solely on college students, caution is warranted in generalizing the findings to clinical samples. Second, we only assessed depression and anxiety symptoms, not formal psychiatric clinical diagnoses. Further-

more, we examined relatively short time spans in the present studies and it would be interesting to evaluate the moderating effects of positive experiences on negative experiences over longer time spans. Future researchers may wish to examine these hypothesis using alternative methodologies such as a daily diary method. Future researchers may also wish to examine psychological mechanisms such as restoration of self-control or coping resources, the maintenance of hope or coping optimism, the maintenance of positive interpersonal reactions with others, or other factors.

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