Let it be: Accepting negative emotional experiences predicts decreased negative affect and depressive symptoms

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Abstract

The present studies examined whether a tendency to accept negative emotional experiences buffers individuals from experiencing elevated negative affect during negative emotional situations (Study 1) and from developing depressive symptoms in the face of life stress (Study 2). Both studies examined female samples. This research expands on existing acceptance research in four ways. First, it examined whether acceptance has beneficial correlates when it matters most: in emotionally taxing (versus more neutral) contexts. Second, in Study 2 a prospective design was used in which acceptance was measured before stress was encountered and before outcomes were measured. Third, depressive symptoms (rather than general functioning or trauma symptoms) were examined as a particularly relevant outcome in the context of stress. Fourth, to enhance generalizability, a community sample (versus undergraduates or a purely clinical sample) was recruited. Results indicated that acceptance was correlated with decreased negative affect during a negative emotion induction but not an affectively neutral condition (Study 1). In Study 2, acceptance interacted with life stress such that acceptance predicted lower levels of depressive symptoms after higher, but not lower, life stress. These results suggest that accepting negative experiences may protect individuals from experiencing negative affect and from developing depressive symptoms.

Keywords

Acceptance; Negative affect; Stress; Depressive symptoms

Individuals frequently attempt to avoid unpleasant feelings when faced with stressful situations (Averill, O'Brien, & DeWitt, 1977; Averill & Rosenn, 1972; Folkman & Lazarus, 1980; Roemer, Litz, Orsillo, &Wagner, 2001). While this approach may seem intuitively appealing, mindfulness and acceptance-based theories as well as recent evidence suggest that it might not be helpful. In fact, it might even be *harmful* in that, paradoxically, accepting (versus avoiding) negative emotions may be associated with *lower* levels of negative affect (Campbell-Sills, Barlow, Brown, & Hofmann, 2006a; Kashdan, Barrios, Forsyth, & Steger, 2006) and decreased depressive symptoms (Kashdan, Morina, & Priebe, 2009).

The present research examines this hypothesis. Theoretical considerations as well as empirical evidence that support that acceptance has beneficial effects are reviewed. Limitations of the relevant literature are highlighted, and two empirical studies are presented that were aimed at addressing these limitations.

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The beneficial effects of accepting negative emotional experiences

Experiential acceptance is conceptualized as a willingness to non-judgmentally remain in contact with aversive experiences, including negative emotions (Hayes, Wilson, Gifford, Follette, & Strosahl, 1996). Acceptance falls on a continuum with experiential avoidance, with higher levels of experiential avoidance reflecting less willingness to experience negative emotions (Boelen & Reijntjes, 2008; Hayes, Jacobson, Follette, & Dougher, 1994; Hayes et al., 1996; Kashdan et al., 2006). Therefore, "low acceptance" is considered to be synonymous with "experiential avoidance" (EA) (Block-Lerner, Wulfert, & Moses, 2009; Hayes et al., 1996).

Several studies support that acceptance has a variety of positive correlates, including decreased anxiety and depressive symptoms (Kashdan et al., 2009; Orcutt, Pickett,& Pope, 2005; Plumb, Orsillo,& Luterek, 2004; Roemer, Salters, Raffa, & Orsillo, 2005; Tull, Gratz, Salters, & Roemer, 2004). Some of the most compelling research on acceptance has examined it under conditions when it maymatter most, namely conditions of high stress (Feldner, Zvolensky, Eifert, & Spira, 2003; Karekla, Forsyth, & Kelly, 2004; Marx & Sloan, 2005; Orcutt et al., 2005; Plumb et al., 2004; Tull et al., 2004). For example, to examine the short-term effects of acceptance under stressful conditions, two studies examined the correlates of acceptance during an acute state of stress induced by a carbon dioxide (CO_2) challenge (Feldner et al., 2003; Karekla et al., 2004). Participants were divided into high and low acceptors based on self-reported levels of trait acceptance. High acceptors reported significantly lower physical and cognitive panic symptoms compared to low acceptors in response to the challenge. These studies suggest that acceptance is correlated with beneficial responding to stressful situations; however, they do not address whether acceptance *causes* beneficial responding.

To advance understanding of the causal role of acceptance, laboratory studies have begun to provide experimental manipulations of acceptance in the context of experimentally induced distress. For example, Levitt, Brown, Orsillo, and Barlow (2004) randomly assigned 60 participants with panic disorder to one of three conditions (acceptance, suppression, or control) prior to a CO_2 challenge. Acceptance participants, compared to participants in the two other groups, reported feeling less anxiety during the challenge.

In an additional experimental study, Campbell-Sills et al. (2006a) examined the effects of acceptance versus emotional suppression in a sample of individuals with anxiety and mood disorders in the context of an anxiety-provoking film. While the suppression and acceptance groups did not differ on negative-affect ratings immediately after the film, the acceptance group compared to the suppression group exhibited lower heart rate during the film and less negative affect during the post-clip recovery period. Hofmann, Heering, Sawyer, and Asnaani (2009) conducted a comparable study in which participants were instructed to deliver an impromptu speech. Similarly to Campbell-Sills et al. (2006a), they found no difference between acceptance and suppression groups in self-reported anxiety ratings immediately following the speech, but the acceptance group, compared to the suppression group, exhibited lower heart rate during the speech. However, unlike in the Campbell-Sills et al. (2006a) study, the acceptance group did not report decreased anxiety compared to the suppression group during the post-speech recovery period. While further studies are needed to clarify the precise nature and time course of the short-term affective benefits of acceptance, overall these studies suggest that acceptance is associated with short-term beneficial effects.

Does acceptance also have more long-term beneficial effects? To examine the effects of acceptance on longer-term mental health, Plumb et al. (2004) conducted a longitudinal study, in which they examined whether acceptance would predict post-stress functioning in

an undergraduate sample. At Time 1, they assessed acceptance and psychological distress. At Time 2, eight weeks later, they measured stressful events experienced between Time 1 and Time 2 as well as psychological distress. After selecting undergraduates who reported having experienced a highly negative event between Time 1 and Time 2, they found that low acceptance predicted greater Time 2 psychological distress beyond initial levels of distress. In a sample of veterans, Plumb et al. (2004) also found that acceptance predicted PTSD symptom severity and depression beyond the degree of combat exposure. These studies are consistent with the notion that acceptance leads to less psychological impairment following stressful events.

Together, these correlational and experimental studies support the seemingly paradoxical notion that acceptance of negative experiences is associated with lower negative affect and greater mental health. In addition, acceptance seems to be particularly beneficial under conditions of high stress. Under conditions of low stress, when individuals presumably encounter fewer negative experiences, acceptance may be less applicable. Together, these considerations suggest a moderation model whereby individuals who accept negative emotional experiences (rather than avoid them) are less likely to experience impaired mental health in the context of higher but not lower stress. This model has important implications for interventions designed to improve individuals' responses to stressful experiences. However, some limitations in the existing research make it difficult to draw definitive conclusions about the protective role of acceptance.

Limitations of previous research

Four limitations in prior research make it difficult to determine the precise role that acceptance plays in adjustment to stressful experiences. First, few studies have examined the interaction between acceptance and stressful experiences to predict outcomes. Instead, the majority of studies has examined the main effects of acceptance on outcomes either only under circumstances of low stress or only under circumstances of high stress. To examine the hypothesis that acceptance is particularly beneficial during times of high stress, the interaction of acceptance and stress must be assessed. Second, the vast majority of studies has examined effects of acceptance on mental health using cross-sectional rather than longitudinal designs, which limits conclusions about the longer-term effects of acceptance on outcomes. In addition, few studies have used prospective designs, which provide an important step toward establishing the protective role of acceptance. Therefore, studies are needed that measure acceptance *before* stress is encountered and which then examine its effects on mental health while controlling for preexisting levels of mental health. Third, in terms of outcomes, prior studies have largely focused on general functioning or trauma symptoms. Given the disabling nature of depression and its established association with stress (Kendler, Thornton, & Gardner, 2000; Tennant, 2002), it is particularly important to consider depressive symptoms as an outcome that may be prevented by acceptance. Fourth, existing studies have relied heavily on either undergraduate samples or clinical samples with a trauma history. No studies that the authors are aware of have examined acceptance in a community sample that has recently experienced a stressful life event. Such samples are important to study, because they are representative of a large portion of the population.

The present research

The present studies aimed to determine whether accepting negative emotional experiences (versus avoiding such experiences) buffers individuals from experiencing negative psychological outcomes. Study 1 examined whether individual differences in acceptance predicted negative affect in the context of a laboratory negative emotion induction versus a relatively neutral context. Study 2 examined whether individual differences in acceptance buffered individuals from developing depressive symptoms in the context of higher versus

lower cumulative life stress. Study 2 had several additional important features. First, a prospective design was used in which a) individual differences in acceptance at Time 1 (T1) were measured; b) *new* cumulative stress (stress that was encountered between T1 and Time 2 (T2; four months after T1; henceforth referred to as "T2 stress") as well as depressive symptoms at T2 were assessed; and c) a community sample was recruited that had recently experienced a stressful life event and was thus at risk for developing elevated depressive symptoms. To further enhance generalizability of results, participants with a wide range of ages and socioeconomic backgrounds were recruited. However, only female participants were recruited in both studies because of known gender differences in risk for developing depression (Culbertson, 1997; Kendler et al., 2000), emotional reactivity (Timmers, Fischer, & Manstead, 1998), exposure to stress (Turner & Avison, 1989), and to reduce variance within the sample.

Study 1

This study tested whether individual differences in acceptance would moderate the relationship between a laboratory emotional context and experience of negative affect. Participants in this study viewed two film clips: one designed to induce relatively minimal negative emotion (neutral clip) and one designed to induce negative emotion (negative clip). After each clip, participants rated the maximum amount of negative affect they experienced during the film clip.

Hypothesis

It was hypothesized that individual differences in acceptance would interact with the type of film clip. Specifically, in the relatively neutral emotion context (when acceptance is not a relevant response) no relationship between acceptance and negative affect was expected. However, in the negative emotion context, it was anticipated that greater acceptance would be associated with lower negative affect.

Method

Participants

One hundred and sixteen female undergraduate students from the University of Denver were recruited to participate in exchange for psychology course credit or $20. Two participants had incomplete data and 15 participants' negative-affect ratings after the neutral film clip were excluded due to extreme scores (more than 2 standard deviations above the group mean) (Cardinal & Aitken, 2006). The final sample consisted of 99 participants. Sample sizes for each of the analyses vary slightly due to differences in missing values across variables. Participants' mean age was 19.8 years ($SD = 1.7$). Participants' self-reported ethnic background was 63% European-American, 6% Asian-American, 3% Hispanic-American, 8% African-American, 4% mixed-race, and 16% indicated "other."

Procedure

The study took place in two sessions: one online questionnaire session and one laboratory study. For the questionnaire session, participants completed a series of online questionnaires which assessed acceptance, trait negative affect, and other self-report measures which are not reported here. This session lasted on average 45 min. On average nine days later ($SD = 5.1$), participants came into the laboratory. Participants first completed demographic questionnaires and then watched two 2-min film clips. The first film clip, which depicted nature scenes, had minimal negative emotion content, while the second film clip, which portrayed a conversation between a father and his son about divorce, had high negative emotion content. Each of the clips was pre-tested to induce very low versus high negative

emotion. Additionally, both clips have been used in previous research (Rottenberg, Ray, & Gross, 2007). The negative film clip was always watched after the neutral clip in order to minimize carryover of negative affect, and because the between-participants effects were of primary interest. After each film clip, participants rated their negative affect (see *Negative-affect ratings*).

Measures

Acceptance—Individual differences in acceptance were measured using the 16-item version of the Acceptance and Action Questionnaire (*alpha* = .79) (AAQ; Hayes et al., 2004). The AAQ is a widely used self-report measure developed to assess the dimension of acceptance versus experiential avoidance. An example item is "I try hard to avoid feeling depressed or anxious." Items are rated on a 7-point scale (e.g., 1 = never true, 4 = sometimes true, 7 = always true) with eight items requiring reverse scoring. The AAQ has adequate test–retest reliability (Hayes et al., 2004) and evidence for its discriminant as well as convergent validity (Forsyth, Parker, & Finlay, 2003; Hayes et al., 1996, 2004; Tull & Roemer, 2003; Walser, Townsend, Wilson, & Hayes, 1996) has been established. AAQ scores are presented so that higher scores indicate greater acceptance.

Trait negative affect—Trait affect was measured with the Positive and Negative Affect Schedule (PANAS; Watson, Clark, & Tellegen, 1988). Participants were asked to rate the extent to which they generally experience each of 20 emotions on a scale of 1 (=very slightly or not at all) to 5 (=extremely). A composite measure of trait negative affect was created by calculating the mean of 10 negative emotions on the PANAS.

Negative-affect ratings—Self-reported negative affect was measured immediately after each film clip. Participants rated the greatest amount of 16 emotions they experienced during the film that they just watched on a scale from 0 (=not at all) to 7 (=extremely). Negative affect was measured with a composite of disgust, shame, anxiety, annoyance, nervousness, sadness, and anger (neutral clip *alpha* = .90; negative clip *alpha* = .80). Similar measures of state affect have been used in other laboratory studies of emotion (Campbell-Sills et al., 2006a; Gross & Levenson, 1997; Mauss, Wilhelm, & Gross, 2004).

Results

Manipulation check: neutral and negative emotion induction

One pairwise *t*-test comparing negative affect for the neutral film clip to that for the negative film clip revealed that each of the film clips induced the expected level of negative affect. Mean levels of negative affect during the neutral film ($M = 1.1$, $SD = 0.2$, range: 1.0–1.6) were significantly lower than during the negative film ($M = 2.3$, $SD = 0.9$, range: 1.1–5.3), $t(99) = -13.5$, $p < .001$.

Acceptance and negative affect

To examine negative-affect correlates of acceptance after each film clip, a repeated-measures analysis of variance (ANOVA) was conducted with acceptance (dichotomized using a median split)[1] as the between-participants factor, film clip as the within-participants factor, and negative-affect ratings during each film clip as the dependent variables. To control for the potential confound of trait negative affect, this variable was included as a covariate in all analyses. Acceptance and trait negative affect were correlated ($r = -.25$, $p = .$

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[1]For ease of interpretation and presentation, results in Study 1 are presented based on the dichotomized acceptance variable (using a median split). All results hold when using acceptance as a continuous variable in the analyses.

02). Results indicated a significant effect of acceptance on negative affect, $F(1, 97) = 5.8$, $p = .02$, partial $\eta^2 = .057$, and a significant effect of film clip $F(1, 97) = 6.8$, $p = .011$, partial $\eta^2 = .067$. As expected, the acceptance by film clip interaction was also significant, $F(1, 97) = 4.90$, $p = .03$, partial $\eta^2 = .049$. Two follow-up independent sample t-tests indicated that during the negative film, individuals high in acceptance ($M = 2.07$, $SD = .74$) experienced significantly lower negative affect compared to individuals low in acceptance ($M = 2.5$, $SD = .10$), $t(97) = -2.59$, $p = .011$. However, during the neutral film clip, participants high in acceptance ($M = 1.1$, $SD = .02$) did not differ significantly from participants low in acceptance ($M = 1.1$, $SD = .03$), $t(97) = -1.11$, $p = .272$ (see Fig. 1).

Summary and discussion

Results from Study 1 indicate that during a negative emotion induction, individuals high in acceptance reported experiencing less negative affect than those low in acceptance. In contrast, in a relatively neutral emotional context, acceptance was not associated with negative affect. Trait negative affect was statistically controlled for, thus ruling out that these effects were due to a key potential confound. The fact that acceptance was associated with lower negative affect in a negative emotional context but not an emotionally neutral context is consistent with the idea that acceptance is not just a trait with emotional correlates but might be more akin to a coping process that, when activated in situations in which it is useful, helps individuals adjust.

While these results have implications for the benefits of acceptance, this study also has five key limitations. First, only short-term emotional experiences were examined. Second, the effects of acceptance were evaluated using a negative film clip, which, because it was provided in a laboratory context, had somewhat limited impact. Third, this study was cross-sectional in nature. A prospective design would be particularly useful to support a lead effect of acceptance on outcomes. Fourth, only undergraduate students were examined. Therefore, further studies are needed to investigate the protective, longer-term benefits of acceptance under higher-impact negative emotional conditions and the effects of acceptance on clinically relevant outcomes using more diverse samples. Finally, emotional experiences were examined in a relatively neutral versus negative context where the neutral context had significantly lower variance than the negative context. Thus, research is needed that addresses the concern of a floor effect by comparing the contexts of lower (but not zero) and higher negative emotion.

Study 2

The goals of Study 2 were: (1) to replicate the moderating effects of acceptance found in Study 1 using a more ecologically valid and higher-impact context: higher versus lower cumulative life stress; (2) to advance the understanding of the protective role of acceptance by using a prospective design, measuring acceptance at Time 1 (T1) four months before new stress and outcomes were assessed (Time 2, T2); (3) to enhance clinical relevance by examining depressive symptoms as the outcome in a sample of participants at risk for developing elevated levels of depressive symptoms; and (4) to enhance generalizability and ecological validity by recruiting a community sample. On the basis of these attributes, Study 2 aims to strengthen understanding of the protective role of acceptance in preventing the development of depressive symptoms in the face of stress.

Hypothesis

It was hypothesized that acceptance at T1 would interact with T2 stress to predict depressive symptoms at T2. Specifically, it was expected that at lower levels of stress, there would be

no relationship between acceptance and depressive symptoms. In contrast, at higher levels of stress, acceptance was expected to be inversely associated with depressive symptoms.

Method

Participants

Eighty-nine female participants were recruited from the Denver metro area to participate in a two-part study. Sixty participants completed the second phase of the study (T2). Participants who completed T2 did not differ from participants who did not on depressive symptoms, acceptance, and stress at T1 (all $ts(90) < 1.4$, $ps > .16$). Of the 60 participants who returned for T2 assessment, five had incomplete data. Thus, the final sample consisted of 55 women. Participants' demographics are reported in Table 1.

Participants were recruited through postings in online bulletins or in public areas such as laundromats and local hospitals. To increase participants' risk for exhibiting depressive symptoms (thus increasing variance in the outcome measure), all participants were required to have experienced a stressful life event (SLE) within the three months prior to T1. SLEs were defined to participants as events with a distinct onset (i.e., a relatively acute instead of a chronic stressor) that had a significant negative impact on their lives. It should be noted that because the prospective effects of acceptance on adjustment to stress was of primary interest the focus of this study was on stress encountered during the four months between T1 and T2. Further details on stress levels in the sample are provided in the *stress assessment* section.

Procedure

At T1, participants came to the laboratory to complete a packet of questionnaires, which assessed acceptance, cumulative stress experienced in the 18 months prior to T1, and current depressive symptoms. Approximately four months later ($M = 120$ days, $SD = 28$) at T2, participants completed an inventory of online questionnaires, which assessed acceptance, cumulative stress encountered during the previous three months, and current depressive symptoms. Both sessions lasted about 1.5 h and assessed other measures that are not reported here.

Measures

Acceptance—Acceptance was measured at T1 using the 16-item version of the Acceptance and Action Questionnaire (*alpha* = .83), as in Study 1.

Cumulative stress—Cumulative life stress was measured at T1 and T2 with the Life Experiences Survey (LES; Sarason, Johnson, & Seigal, 1978), a widely used measure of cumulative stress (e.g., Herrington, Matheny, Curlette, McCarthy, & Penick, 2005; Schmidt, Demulder, & Denham, 2002). The LES consists of 45 items assessing a wide range of potentially stressful events (e.g., death of a family member, divorce). The standard instructions of the LES were modified such that participants were asked to identify events that had occurred within the last 18 months (for T1) and within the last three months (for T2). Although this study's recruitment strategy targeted participants who had all experienced a stressful life event (SLE) in the three months prior to T1, it was not assumed that these recent events were the only source of stress. To capture all sources of stress that may have been affecting participants, cumulative stress was measured rather than just impact of the single SLE. The three-month reference time frame for T2 was chosen to ensure that only events encountered *after* the measure of acceptance at T1 would be reported.

For each item of the LES, participants indicated if a particular event had occurred within the time of interest (prior 18 months for T1 and prior 3 months for T2), and the impact of each event they experienced with ratings on a 7-point scale, where -3 indicates "extremely negative," 0 indicates "no impact," and +3 indicates "extremely positive." Although the LES provides positive and negative impact of stressors, as in other studies (Denisoff & Endler, 2000; Herrington et al., 2005) the negative impact of events was used here because negative events are better predictors of negative psychological outcomes than positive events (Sarason, Sarason, Potter, & Antoni, 1985; Vinokur & Selzer, 1975). Lastly, because it was hypothesized that results should hold across a wide range of stressors, impact ratings were summed across all types of stressors in the LES. Thus, a total cumulative negative impact score was calculated by summing all impact ratings of negatively rated SLEs. Summed scores were then reverse coded so that higher scores denote greater stress. This yielded one cumulative stress score for T1 and one cumulative stress score for T2.

Cumulative stress at T1 ranged from 2 to 37.3 ($M = 15$, $SD = 8.9$). Cumulative stress at T2 ranged from 0 to 12.5 ($M = 2.8$, $SD = 3.4$). Outliers for the stress variables at T1 and T2 were adjusted to fall 1.5 times the interquartile range below the 25th percentile or above the 75th percentile (i.e. to the whiskers in Tukey's (1977) box plot). For comparison, the mean level of 12months of cumulative stress impact in a normative sample of young adult women is 8.3 (this corresponds to 2.1 for a three-month period; Denisoff & Endler, 2000). Thus, cumulative stress at T2 for this sample was slightly higher than that of a normative sample over a three-month time span. The maximum cumulative stress at T2 of 12.5 in this sample corresponds to four events that were rated to have extremely negative impact. Thus, the range of T2 stress in this sample varied from no to high cumulative stress. Participants endorsed a variety of stressful events between T1 and T2, including: financial difficulties, death or illness of a close family member or friend, change in residence, divorce, and breakup of a long-term relationship. Degree of T2 stress was unrelated to family income, education, age, or ethnicity ($ps > .37$).

Depressive symptoms—Current depressive symptoms at T1 were measured using the Beck Depression Inventory (BDI; Beck & Steer, 1984). Depressive symptoms at T2 were measured with the BDI and the Inventory to Diagnose Depression (IDD; Zimmerman & Coryell, 1987). The IDD was added as an additional depression measure for T2 because of its sensitivity in identifying clinical symptoms of major depressive disorder (Zimmerman, Coryell, Corenthal, & Wilson, 1986). The BDI and IDD are self-report measures that each consist of 21 items. One question in each measure pertaining to suicidal thoughts was not included due to Internal Review Board concerns. The BDI and the IDD have been found to be highly correlated in a variety of samples ($r = .84$, $p < .01$, in the current sample) (Haaga, McDermut, & Ahrens, 1993; Hodgins, Dufour, & Armstrong, 2000; Rogers, Adler, Bungay, & Wilson, 2005; Zimmerman et al., 1986). Both measures have been shown to have adequate internal consistency (T1 BDI: *alpha* = .88; T2 BDI: *alpha* = .90; IDD: *alpha* = .85 in the current sample) and each has been widely used in research to measure current depressive symptoms (e.g., Bates & Lavery, 2003; Elliott, Brossart, Berry, & Fine, 2008; O'Donnell, Wardle, Dantzer, & Steptoe, 2006; O'Hara, Stuart, Gorman, & Wenzel, 2000). To enhance the reliability of the depression measure and because 13 participants did not complete the BDI at T2, a composite variable (an average of *z*-scored BDI and IDD) was calculated and used as the depression outcome.

Results

Table 1 summarizes zero-order correlations among variables of interest. To test the hypothesis that the interaction between acceptance and T2 stress predicted depressive symptoms, regression analyses were run with T1 acceptance, T1 depressive symptoms, T1

and T2 stress, and the interaction term of T1 acceptance by T2 stress entered as predictors, and depressive symptoms at T2 as the outcome. The T1 acceptance and T2 stress variables were centered to reduce multicollinearity (Cronbach, 1987). There was a significant main effect of T2 stress ($\beta = .37$, $t = 3.8$, $p < .001$) but not of T1 acceptance ($\beta = .06$, $t = .48$, $p = .64$). As expected, the interaction between T1 acceptance and T2 stress predicted T2 depressive symptoms ($\beta = .20$, $t = 2.0$, $p = .05$). To examine the incremental variance explained by the interaction between acceptance and stress, a hierarchical regression was performed with all of the main effects entered in Step 1 and the interaction between acceptance and stress entered in Step 2. The interaction term explained significant variance over and above the other variables (change in $R^2 = .04$, $p = .04$).

The interaction between T1 acceptance and T2 stress was examined following the procedures outlined by Aiken and West (1991). The relationship was plotted using values ± 1 standard deviation of T1 acceptance and T2 stress (see Fig. 2). A simple slopes analysis of the regression lines revealed that only the low acceptance line was significantly different from zero ($\beta = .57$, $t = 3.8$, $p < .001$), while the slope of the high acceptance line was not significantly different from zero ($\beta = .18$, $t = 1.3$, $p = .20$). In other words, as illustrated in Fig. 2, only participants lower in acceptance exhibited increased depressive symptoms with higher levels of stress. In contrast, individuals higher in acceptance did not show increased levels of depressive symptoms with higher levels of stress. The same interaction effect was examined next, but with higher versus lower stress on separate regression lines at higher versus lower levels of acceptance. This analysis revealed the slope of the regression line across different levels of acceptance was not significantly different from zero at lower stress ($\beta = .15$, $t = .87$, $p = .39$) or at higher stress ($\beta = -.27$, $t = -1.7$, $p = .10$). The marginal effect at higher stress was in the direction of higher acceptance being associated with lower levels of depressive symptoms[2].

General discussion

Emerging research suggests that, somewhat paradoxically, avoiding negative emotional experiences may be associated with negative outcomes while accepting negative emotional experiences may be associated with positive outcomes. However, while correlational and short-term experimental studies are consistent with this hypothesis, less is known about the effects of acceptance under particularly relevant conditions such as higher (versus lower) stress. Additionally, little is known about the prospective effects of acceptance on mental health, an important limitation to causal models.

Study 1 examined the correlation between individual differences in acceptance and self-reported negative affect in an emotionally neutral and an emotionally negative laboratory context. The results suggest that individuals high in acceptance experienced lower negative affect than individuals low in acceptance in the context of the negative emotion induction. In the emotionally neutral context, acceptance was not associated with negative affect. Study 2 examined the moderating effects of acceptance in a context with greater ecological validity. Specifically, a community sample of women at risk for developing depression was tested to determine whether individual differences in acceptance would buffer individuals from developing depressive symptoms in the face of elevated life stress. Results from this study suggest that greater acceptance protects stressed individuals from developing depressive symptoms. In lower stress, acceptance was not associated with depressive symptoms.

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[2]Portions of the data used in Study 2 are reported in Troy, Wilhelm, Shallcross, & Mauss, in press. This article is concerned with questions different from the ones discussed in the present article; therefore, there is no overlap with the present article.

One aspect of the present results must be reconciled with prior, seemingly inconsistent, findings. For example, while this study and others (Eifert & Heffner, 2003; Feldner et al., 2003; Levitt et al., 2004) have found beneficial effects of acceptance on experience of negative emotion, some studies have not (Hofmann et al., 2009; Liverant, Brown, Barlow, & Roemer, 2008). How can these seemingly contradictory results be explained? One feature of studies that have not documented effects of acceptance is that they compared acceptance to experiential and behavioral suppression rather than a 'no instruction' control group. This feature may weaken one's ability to find effects of acceptance because suppression may lead individuals to under-report negative emotion experience. A second feature of some of the studies that have not found effects of acceptance on negative emotion experience is that they examined clinical samples (Liverant et al., 2008) or responding to an intense anxiety induction (Hofmann et al., 2009). It might be that in these contexts negative emotional responding is too intense to be affected by acceptance. A third feature shared by studies that have not documented an effect of acceptance on negative emotion is that they are experimental studies. It might be that – in contrast to individual differences in acceptance – a brief acceptance instruction does not lead to successful acceptance. This idea supports a conceptualization of acceptance as a skill that individuals may need to develop across longer periods of time for it to reach its full effectiveness. Together, these differences across studies point to important potential boundary conditions of the effectiveness of acceptance, which should be examined in future studies.

Implications for understanding the role of acceptance in adjustment to stress

Results from the present studies support a model in which acceptance plays a moderating role in the link between emotionally negative situations and negative psychological outcomes. The following features of this model are discussed below: (a) acceptance is a coping mechanism; (b) acceptance leads to adaptive outcomes rather than the other way around; (c) generalizability; and (d) mechanisms by which acceptance may lead to outcomes.

First, the present results are consistent with the notion that acceptance is an adaptive coping mechanism that is useful in emotionally charged situations rather than simply a trait that is associated with positive outcomes across contexts. If acceptance was a context-independent trait, one would expect a main effect of acceptance on beneficial outcomes across contexts. When the interaction terms were not included in the analyses, previous studies' findings of such main effects were replicated. However, the studies presented here indicate that these main effects are qualified by emotional context (Study 1) and stress levels (Study 2). Beneficial effects of acceptance on negative affect (Study 1) and depressive symptoms (Study 2) were observed at higher levels of negative emotion and stress but not at lower levels of negative emotion and stress. Study 1 leaves open the possibility that no relationships were found in the neutral context because of a floor effect (all participants reported very low negative affect). However, Study 2 is inconsistent with this alternative explanation because it replicates nonsignificant effects of acceptance in a context that showed adequate variance in depressive symptoms. Together, these findings are consistent with the notion that acceptance is not simply a trait with emotional correlates but may rather act as a coping process that helps individuals in situations in which it is useful.

Second, we propose a directional model whereby acceptance buffers individuals from developing elevated levels of depressive symptoms in the face of life stress. Two alternative hypotheses which support a reverse directional model should be considered. First, depression could be driving the effects, and individuals experiencing more depression at T1 (and who are therefore more prone to depression at T2), might report less accepting attitudes toward negative emotions at T1, which could contribute to the effect of T1 acceptance on T2 depression. A second alternative hypothesis is that individuals higher in acceptance are

likely to encounter fewer stressful experiences at T2, thus influencing T2 depression. Four aspects of the present studies render these alternative hypotheses less likely. First, Study 2 supports a prospective role of acceptance because the assessment of acceptance occurred before the assessment of stress and depressive symptoms. Second, trait negative affect (Study 1), initial depressive symptoms and initial stress (Study 2) were controlled for, and results still showed a significant relationship between acceptance and negative affect (Study 1) and depressive symptoms (Study 2). Third, T1 acceptance was unrelated to T2 stress (see Table 2), which suggests that acceptance did not lead individuals to encounter fewer stressors. Fourth, results align with studies in which experimental manipulations of acceptance led to adaptive outcomes (Campbell-Sills et al., 2006a;Feldner et al., 2003;Karekla et al., 2004;Levitt et al., 2004). Together these features help substantiate the proposed directional relationship between acceptance, negative affect, and depressive symptoms.

Third, the present findings appear to be generalizable across stressor types, SES, ethnic, and age groups. Two aspects of Study 2 support this argument. First, participants experienced a wide range of stressor types and were heterogeneous in terms of ethnicity and socioeconomic status (SES). Although power constraints prevented testing the effects of these potential moderators, the results held across these factors. Second, while the limited age range in Study 1 (18–31) precluded the examination of moderator effects of age in Study 1, such effects were possible to be explored in Study 2 because the sample in Study 2 represented a large age range (19–62). Based on studies that have shown a relationship between acceptance (Ryff, 1991), emotion regulation (Carstensen, Fung, & Charles, 2003), and age, one may hypothesize that with increasing age individuals become better able to accept negative experiences (Ryff, 1989), and that the effects of acceptance become stronger with age. Exploratory analyses showed no significant correlation between acceptance and age ($r = -.09$, $p = .41$) and no significant 3-way interaction between acceptance, age, and stress predicting depressive symptoms (change in $R^2 < .001$, $p = .54$). Together, the heterogeneity of the sample in Study 2 and results from exploratory analyses of age suggest that the present findings generalize across stressor types, ethnicity, SES, and age.

Fourth, while the present study was not aimed at assessing the mechanisms by which acceptance influences negative affect and depressive symptoms, the results are consistent with two potentially related hypotheses about how acceptance may produce positive outcomes. First, acceptance appears to decrease both over-engagement (e.g., rumination and entanglement) and under-engagement (e.g., avoidance) with emotions and may therefore be associated with better emotion regulation abilities (Hofmann & Asmundson, 2008; Roemer et al., 2009; Tull & Roemer, 2007). Thus, acceptance may lead to better psychological adjustment by enhancing individuals' ability to regulate their negative emotions. Second, acceptance may have beneficial effects by mitigating the negative side effects associated with maladaptive emotion regulation strategies such as emotion suppression (Campbell-Sills, Barlow, Brown, & Hofmann, 2006b; Wegner, Schneider, Carter, & White, 1987). The present results are consistent with these hypotheses. However, additional studies are needed that assess potential mediators in the link between acceptance and mental health to more conclusively address these hypotheses.

Clinical implications

Results from Study 2 have implications for understanding of depression as well as for interventions. Although clinical diagnoses of depression were not acquired, at T2 45% ($N = 21$) of participants met criteria for a diagnosis of Major Depressive Disorder (MDD) on the BDI ($N = 14$: mild-moderate depression [BDI scores between 14 and 28]; $N = 7$: severe depression [BDI scores over 28]) (Beck & Steer, 1984), and 21% ($N = 19$) met criteria for a diagnosis of MDD on the IDD (Zimmerman et al., 1986). The present sample was not large

enough to conduct statistical tests with MDD diagnoses as an outcome. However, descriptive statistics from the IDD show a pattern of results consistent with the findings for depressive symptoms, with the lowest incidence of MDD in the low stress, high acceptance group (11%, $N = 2$), and the highest incidence of MDD in the high stress, low acceptance group (47%, $N = 9$). The two other combinations yielded intermediate likelihoods, with 16%, $N = 3$, in the low stress, low acceptance group and 26%, $N = 5$, in the high stress, high acceptance group.

In turn, in terms of clinical intervention and prevention programs, the present findings support the notion that increasing acceptance of negative emotional experiences might be an active ingredient in therapies such as Acceptance and Commitment Therapy and mindfulness-based interventions. While these therapies target acceptance and have been shown to be effective (Hayes, Strohsahl, & Wilson, 1999; Ma & Teasdale, 2004; Strosahl, Hayes, Bergan, & Romano, 1998; Teasdale et al., 2000), little research has examined whether acceptance is an active ingredient. In addition, the present results suggest that interventions that target acceptance could be particularly effective in individuals who are highly stressed and who are low in acceptance.

Limitations and future directions

There are several limitations of the present research that warrant further research. First, because the samples only included women, further studies are needed to determine whether the relationships observed in the present studies generalize to men. Given that stress is a risk factor for depression in both males and females (Hammen & Cochran, 1981; Tennant, 2002) and because acceptance predicts decreased depressive symptoms across genders (Spinhoven, Bamelis, Molendijk, Haringsma, & Arntz, 2009), it is expected that the present findings would generalize to men. However, further research is needed to test this hypothesis.

Second, although only negative affect and depressive symptoms were examined here, it is anticipated that the present findings would generalize to other outcomes (such as PTSD and other anxiety disorders) for two reasons. First, correlational and experimental studies have documented effects of acceptance on PTSD and anxiety-related outcomes (Campbell-Sills et al., 2006a; Eifert & Heffner, 2003; Feldner et al., 2003; Levitt et al., 2004; Roemer et al., 2005, 2009; Tull et al., 2004, Tull & Roemer, 2007). Second, such outcomes are highly correlated both with stress and with depression (Kessler, Sonnega, Bromet, Hughes, & Nelson, 1995; Shalev et al., 1998). Nonetheless, future studies examining the full range of outcomes are needed to empirically examine the hypothesis that the present findings generalize to other outcomes.

A third limitation of the present studies concerns the measure of acceptance, the AAQ (Hayes et al., 2004). Although acceptance is the focus of an increasing number of empirical investigations, and the AAQ is the only widely used measure of individual differences in acceptance, it is not without limitations. For example, the AAQ may measure the inability to take necessary action (as its name implies) as well as other related constructs (e. g., Chawla & Ostafin, 2007; Hayes et al., 2004; Kashdan et al., 2006). This raises the key question of whether one should use the AAQ as a one-dimensional (versus a multi-dimensional) scale. For the present studies, the AAQ was used as a one-dimensional scale for the following four reasons. 1) It enhances continuity with prior research of acceptance/experiential avoidance, which has utilized the AAQ as a one-dimensional measure (e.g., Kashdan et al., 2006; Kelly & Forsyth, 2009; Tull & Roemer, 2003). 2) Subscales of the AAQ have not been conclusively established. The difficulty of isolating subcomponents in the AAQ may be due to the fact that acceptance is a collection of tightly related processes which have at their core the tendency to accept negative emotional experiences (Hayes et al., 2004). 3) The present data provide some empirical support for the use of the AAQ as a one-dimensional measure.

(a) The AAQ had adequate internal consistency (*Cronbach's alphas* = .70 for Study 1 and .83 for Study 2). (b) An exploratory factor analysis suggested a one-factor solution, with a first initial factor producing an Eigenvalue of 4.9 and explaining 31% of the variance. This was followed by three factors with Eigenvalues barely above 1 that collectively explained an additional 25% of the variance. 4) It was tested whether select face-valid acceptance items in the AAQ predicted depression symptoms in a way comparable to the overall AAQ. To do so, the primary analysis was re-run using a composite of face-valid acceptance items ("I try to suppress thoughts and feelings that I don't like by just not thinking about them;" "It's ok to feel depressed or anxious"-reverse scored; "I am not afraid of my feelings"-reverse scored). The results using this "pure" acceptance composite were comparable to the primary results ($p = .05$) for the interaction between acceptance and T2 stress. These exploratory analyses bolster the notion that acceptance is an active ingredient in the effect of the AAQ. In sum, there are theoretical and empirical reasons for using the AAQ as a one-dimensional scale and for using the label "acceptance" (rather than related constructs that may also be assessed by the AAQ) when interpreting these results. However, further research into the measurement of acceptance is needed.

Fourth, the present studies are limited by their reliance on self-report measures of acceptance, stress, and depressive symptoms. Self-report measures featured prominently in these studies because perceptual constructs such as negative affect and impact of stressful life events can be reliably measured with self-report questionnaires (Mauss & Robinson, 2009; Schmitt, 1994; Spector, 1994). Therefore, using self-report measures was an important first step for examining the relationships between acceptance, stress, and depressive symptoms. Additionally, the results converge with correlational and experimental studies that used behavioral and physiological measures (Levitt et al., 2004; Campbell-Sills et al., 2006a). Nonetheless, research that is not solely based on self-report measures would further enhance the understanding of the effects of acceptance.

Finally, while it is proposed that acceptance moderates the relationship between life stress and depressive symptoms by reducing negative affect, it may be that acceptance works instead, or additionally, by helping people tolerate episodes of diminished *positive* affect. This alternative hypothesis seems less likely because the items in the AAQ solely target negative experiences. Still, these ideas remain untested, and studies are needed that examine the relationship between acceptance and positive affect in predicting depression.

Concluding comment

How people engage with their emotions is a critical factor in how they adjust to negative experiences. The present research suggests that women who accept negative emotional experiences respond with lesser negative affect to negative emotional situations and develop fewer depressive symptoms in the face of high life stress. These findings suggest that a tendency to accept negative experiences might be beneficial, and that fostering this tendency might be an important feature of clinical intervention and prevention programs that aim to reduce stress-related outcomes such as depression.

Acknowledgments

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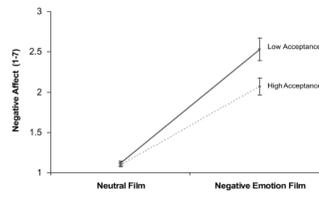
Fig. 1.
The interaction of emotional context (neutral versus negative emotion induction) and individual differences in acceptance on negative affect.
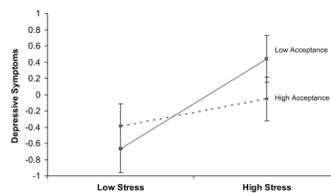
Fig. 2.
Test for a non-zero slope. The interaction effect of T2 stress and individual differences in T1 acceptance on T2 depressive symptoms (*z*-scored). Values depict estimates at ±1 *SD* for cumulative stress and acceptance. Error bars represent standard error of the mean.

Table 1

Demographic characteristics for Study 2 sample.

Characteristic	
Mean age in years (*SD*)	37 (12.3)
Ethnicity	
European-American	81%
African-American	6%
Asian-American	4%
Hispanic-American	4%
Mixed-race or other	5%
Family income per year	
<$10,000	9%
$10,000–$30,000	12%
$10,000–$30,000	30%
>$50,000	33%
Did not report	16%
Education background	
Partial high school	1%
High school graduate	1%
Partial college	38%
College graduate	45%
Graduate degree	14%
Did not report	1%

Table 2

Correlations between acceptance, stress, and depression at Time 1 (first session, T1) and T2 (second session, T2, four months after T1).

	1	2	3	4	5
1. T1 Acceptance	–	−.27[*]	−.14	−.67[**]	−.52[**]
2. T1 Stress		–	.10	.52[**]	.52[**]
3. T2 Stress			–	.11	.41[**]
4. T1 Depressive symptoms				–	.63[**]
5. T2 Depressive symptoms					–

[*]
$p < .05$.

[**]
$p < .01$.