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ORIGINAL ARTICLE

Experiential Avoidance and Negative Emotional Experiences: The Moderating Role of Expectancies About Emotion Regulation Strategies

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Abstract In the present set of studies we examined whether expectancies about emotion regulation strategies moderate the relationship between experiential avoidance (EA) and negative emotional experiences. In Study 1, college students ($N = 334$) completed self-report measures assessing EA, expectancies about emotion regulation strategies, and psychological symptoms (depression, anxiety, and stress). In Study 2, college students ($N = 97$) completed (a) self-report measures assessing pre-task state negative affect, EA, and expectancies about emotion regulation strategies; (b) either an emotionally neutral or emotionally negative task; and (c) a self-report measure of post-task state negative affect. Consistent with predictions, pessimistic expectancies about emotion regulation strategies (reflecting perceptions about having a lack of emotion regulation abilities) potentiated the relationship between EA and negative emotional reactions in both studies. In Study 2, this potentiating effect was observed in response to the emotionally negative, but not emotionally neutral, task. Conceptual and therapeutic implications are discussed.

Keywords Anxiety · Depression · Emotion regulation · Experiential avoidance · Negative affect · Negative mood regulation expectancies · Stress

Introduction

Experiential avoidance (EA) represents an unwillingness to stay in contact with unwanted inner experiences (e.g., emotions, thoughts, sensations) and is believed to engender the use of a wide array of avoidant coping strategies that serve to exacerbate emotional distress (Hayes et al. 1996). For example, Hayes et al. opined "that many forms of psychopathology can be conceptualized as unhealthy efforts to escape and avoid emotions, thoughts, memories, and other private experiences" (p. 1152). Thus, EA is considered a core vulnerability factor for emotional distress. Indeed, a number of correlational and laboratory-based studies support a positive association between EA and indices of emotional distress (see Chawla and Ostafin 2007, for a review).

Theories of negative mood regulation expectancies might suggest that the association between EA and emotional distress depends on perceptions about emotion regulation abilities. More specifically, Catanzaro and Greenwood (1994) asserted that when individuals perceive themselves as able to cope with negative emotional experiences, "they should experience alleviation of their negative mood as a direct result of their optimistic beliefs, irrespective of their actual coping responses" (p. 35). As such, and by extension, pessimistic mood regulation expectancies should exacerbate negative emotional states. Subsequent empirical studies have provided support for such a role of negative mood regulation expectancies in relation to negative mood states. For example, negative mood regulation expectancies prospectively predicted symptoms of psychopathology at 8-week (Kassel et al. 2006) and 1-year (Davis et al. 2005) follow-ups. Further, research supports Catanzaro and Greenwood's assertion that negative mood regulation expectancies incrementally contribute to our understanding of emotional distress beyond coping strategies. In particular, negative mood regulation expectancies share significant concurrent relations with symptoms of psychopathology after partialing

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out the effects of active and avoidant coping strategies (Catanzaro and Greenwood 1994; Kirsch et al. 1990).

Negative mood regulation expectancies are also considered a core component of contemporary conceptualizations of emotion regulation. Gratz and Roemer (2004) identified six dimensions of emotion regulation. One dimension, labeled *limited access to emotion regulation strategies*, parallels the construct of negative mood regulation expectancies, as both relate to one's perceived ability to cope with emotional distress. More specifically, the limited access to emotion regulation strategies dimension is defined as "the belief that there is little that can be done to regulate emotions effectively, once an individual is upset" (Gratz and Roemer 2004, p. 47). Consistent with the noted overlap between negative mood regulation expectancies and this specific emotion regulation dimension, Gratz and Roemer found, using tests of dependent correlations, that a measure of mood regulation expectancies (with higher scores indicating more *optimistic* expectancies) correlated significantly strongest with the limited access to emotion regulation strategies dimension ($r = -.69$) relative to the other dimensions believed to characterize emotion regulation (rs ranging from $-.34$ to $-.53$). Interestingly, Gratz and Roemer also found that EA correlated significantly strongest with the limited access to emotion regulation strategies dimension ($r = .56$) relative to the five other emotion regulation dimensions (rs ranging from .32 to .44).

Along with being especially relevant to EA, negative mood regulation expectancies have been found to improve our understanding of when and how EA-relevant constructs relate to negative emotional experiences. More specifically, Kashdan et al. (2008) found that limited access to emotion regulation strategies (Gratz and Roemer 2004) moderated the relationship between anxiety sensitivity, a construct that is both conceptually and empirically relevant to EA (e.g., Berman et al. 2010; Kämpfe et al. 2012), and a number of negative emotional experiences (e.g., anxious arousal, worry). Based on their findings, Kashdan et al. concluded that, for individuals with high levels of vulnerability (in this case, anxiety sensitivity), "it may be particularly problematic to believe that nothing can be done with unpleasant and bothersome emotional experiences" (p. 437). Given the conceptual and empirical overlap between anxiety sensitivity and EA, the relation between EA and negative emotional experiences might thus also depend on one's perception of their ability to regulate negative emotions.

Present Studies

To examine this possibility, the present set of studies examined whether emotion regulation expectancies moderated the relationship between EA and negative emotional experiences. In Study 1, we examined this research question by investigating whether emotion regulation expectancies potentiated concurrent relations between EA and psychological symptoms (depression, anxiety, and stress). In Study 2 we heeded the call for increased laboratory-based studies examining the phenomenology of EA (Sloan 2004) by examining whether emotion regulation expectancies potentiated the relationship between EA and negative affect following an emotionally negative task. Following from the pattern of results reported by Kashdan et al. (2008), we predicted that EA would relate to significantly heightened negative emotional experiences (i.e., psychological symptoms in Study 1 and negative affect in Study 2) when individuals perceive themselves as having a deficit in the ability to regulate negative emotions.

These predicted findings might be associated with important conceptual and therapeutic implications. For example, findings consistent with our predictions may help clarify when and how EA relates to emotional difficulties. That is, finding that EA relates to heightened emotional difficulties when individuals perceive themselves as being unable to strategically regulate negative emotions might suggest that an unwillingness to stay in contact with unwanted inner experiences is especially detrimental when individuals hold pessimistic mood regulation expectancies. More broadly, such findings might help clarify under what conditions avoidant coping responses relate to negative emotional states, an empirical question of interest to emotion regulation researchers (Hofmann et al. 2012). In addition, research suggests that targeting emotion regulation difficulties is a useful adjunct to standard cognitive-behavioral interventions (Berking et al. 2008). As such, the predicted findings might indicate that targeting expectancies relating to individuals' emotion regulation abilities is an especially useful intervention strategy.

Study 1

Methods

Participants

The sample consisted of 334 undergraduate students recruited through introductory psychology courses at a Midwestern US University. Students received partial course credit for participation. The sample had a mean age of 19.6 years (SD = 3.3) and was 59.3 % female. Participants predominantly self-identified as White (62.9 %), with a relative minority self-identifying as Black (16.5 %), Asian (8.1 %), and "Other" (10.7 %). Approximately

1.8 % of participants did not provide information regarding race. Approximately 8.7 % of participants self-identified as being of Hispanic or Latino decent. Two participants (.6 % of total sample) omitted responses to all of the study measures and were excluded from reported analyses.

Measures

Acceptance and Action Questionnaire-II (AAQ-II; Bond et al. 2011) The AAQ-II is a 7-item measure that assesses EA. Responses are provided on a 1 (*never true*) to 7 (*always true*) scale. Higher scores on the AAQ-II are indicative of *greater* levels of EA (e.g., *I'm afraid of my feelings*). The AAQ-II was developed to correct for limitations of its predecessor (AAQ-I; Hayes et al. 2004), particularly the item complexity and internal consistency of the AAQ-I. The AAQ-II items were developed to be consistent with the content assessed by the AAQ-I items. Although there is no exact item overlap between the AAQ-I and AAQ-II, there are similarities among a number of their items (e.g., AAQ-I: *Worries can get in the way of my success*; AAQ-II: *Worries get in the way of my success*). The AAQ-II has shown adequate psychometric properties in prior studies, including a near-perfect convergent correlation ($r = .97$) with the AAQ-I (Bond et al. 2011).

Difficulties in Emotion Regulation Scale (DERS; Gratz and Roemer 2004) The DERS is a 36-item measure that assesses the domain of emotion regulation difficulties. Responses are provided on a 1 (*almost never*, 0–10 %) to 5 (*almost always*, 91–100 %) scale. The DERS limited access to emotion regulation strategies subscale (i.e., DERS-Strategies)—the subscale assessing the construct of interest in the present study—contains eight items. Higher scores on this DERS subscale are indicative of *pessimistic* emotion regulation expectancies (e.g., *When I'm upset, I believe that there is nothing I can do to make myself feel better*). This DERS subscale has shown adequate psychometric properties in prior studies, including the strong negative correlation with optimistic mood regulation expectancies ($r = -.69$) noted above (Gratz and Roemer 2004).

Depression, Anxiety, and Stress Scale-21-item Version (DASS-21; Lovibond and Lovibond 1995) The DASS-21 is a 21-item measure that assesses depression, anxiety, and stress symptoms using three, 7-item scales. Responses are provided on a 0 (*did not apply to me at all*) to 3 (*applied to me very much, or most of the time*) scale and instructions ask respondents to indicate how much each statement applied to them over the past week. Each DASS-21 scale has shown adequate psychometric properties in prior studies, including sharing strong convergent correlations with other depression ($r = .79$), anxiety ($r = .85$), and stress ($r = .71$) scales (Antony et al. 1998).

Procedure

For this IRB-approved study, participants completed a fixed-order questionnaire packet that included the above measures. Informed consent and questionnaire administration were completed using a secure online survey program. Participants could complete the study at any computer with internet access of their choosing, and were informed that their responses were confidential and that they were free to withdraw from the study at any time.

Data Analytic Strategy

Aiken and West's (1991) recommendations for testing continuous interaction effects were used, in which the predictors (AAQ-II and DERS-Strategies) were mean-centered and entered simultaneously in Step 1 of a hierarchical regression. Next, an interaction effect was computed (calculated as the product of the centered predictors) and entered in Step 2 of each regression model predicting one of the DASS-21 scales (i.e., depression, anxiety, stress).

Graphs and simple regression equations (simple effects) were used to further investigate significant interaction terms. Following Aiken and West (1991), two simple regression equations were constructed (using ±1 SD from the DERS-Strategies mean) for each model to depict the interaction effect. To plot these equations, two values of the AAQ-II (±1 SD from the AAQ-II mean) were substituted into the regression equations. Significance levels of the simple slopes of these regression equations were tested at both low (−1 SD) and high (+1 SD) DERS-Strategies values to examine relations between EA and psychological symptoms at different levels of expectancies about emotion regulation strategies.

Results

Regression Assumptions

An examination of scatterplots indicated that the regression assumptions were met for all three models (see Cohen et al. 2003). This included: (a) the correct specification of the form of the relationship between the predictors and dependent variable, (b) the correct specification of the predictors, (c) homoscedasticity, and (d) the independence of residuals. An examination of Q–Q plots of residuals showed no robust violations of the normality of residuals for either model. Moreover, an examination of outliers identified no cases as being highly influential (defined

as > 1 $DFFITS_i$; Cohen et al. 2003) on the estimates within any of the regression models. Of note, multicollinearity statistics were all above recommended levels (tolerance statistics >.10; Cohen et al. 2003), indicating no robust multicollinearity problems within the regression models.

Moderating Role of Limited Access to Emotion Regulation Strategies

Depression Descriptive statistics and zero-order correlations among the Study 1 variables are presented in Table 1. Results from regression analyses in which predictors of the psychological symptoms were examined are presented in Table 2. As predicted, the interaction between AAQ-II and DERS-Strategies (partial $r = .18$) explained additional significant variance in depression scores in Step 2 of the regression model (Step 2 $\Delta R^2 = .02$, $p < .01$). Simple effects of this interaction are depicted in Fig. 1 (Panel A). As shown, there was a significant positive relationship between the AAQ-II and depression scores at both high (simple effect: partial $r = .36$, $p < .01$) and low (simple effect: partial $r = .12$, $p < .05$) levels of DERS-Strategies.

Anxiety As predicted, the interaction between AAQ-II and DERS-Strategies (partial $r = .11$) explained additional significant variance in anxiety scores in Step 2 of the regression model (Step 2 $\Delta R^2 = .01$, $p < .05$). Simple effects of this interaction are depicted in Fig. 1 (Panel B). As shown, there was a significant positive relationship between the AAQ-II and anxiety scores at both high (simple effect: partial $r = .28$, $p < .01$) and low (simple effect: partial $r = .11$, $p < .05$) levels of DERS-Strategies.

Stress As predicted, the interaction between AAQ-II and DERS-Strategies (partial $r = .21$) explained additional significant variance in stress scores in Step 2 of the regression model (Step 2 $\Delta R^2 = .02$, $p < .01$). Simple effects of this interaction are depicted in Fig. 1 (Panel C). As shown, there was a significant positive relationship between the AAQ-II and stress scores at both high (simple effect: partial $r = .43$, $p < .01$) and low (simple effect: partial $r = .15$, $p < .01$) levels of DERS-Strategies.

Study 1 Summary

In Study 1, we examined whether emotion regulation expectancies moderated concurrent relations between EA and emotional distress. Support for moderation was found, as concurrent relations between EA and depression, anxiety, and stress symptoms all grew increasingly stronger as pessimistic emotion regulation strategies increased. Although promising, it is important to extend Study 1

Table 1 Descriptive statistics and zero-order correlations of Study 1 variables

Variable	Range		Mean	(SD)	1	2	3	4	5
	Possible	Observed							
1. Acceptance and Action Questionnaire-II	7–49	7–41	17.35	(8.84)	(.92)				
2. Difficulties in Emotion Regulation Scale-strategies	8–40	8–36	16.13	(6.47)	.64	(.88)			
3. DASS-21-depression	0–21	0–21	3.69	(4.70)	.59	.61	(.91)		
4. DASS-21-anxiety	0–21	0–19	2.94	(3.82)	.49	.50	.71	(.87)	
5. DASS-21-stress	0–21	0–21	4.57	(4.69)	.61	.58	.82	.76	(.89)

$N = 332$. All *r*s significant at $p < .01$ (two-tailed). Cronbach's alpha coefficients listed in parentheses along the diagonal. *DASS-21* Depression, Anxiety, Stress Scale-21-item version

Table 2 Regression results predicting symptom measure scores in Study 1

Variable	DASS-21-Depression			DASS-21-Anxiety			DASS-21-Stress		
	ΔR^2	Step 1 Partial *r*	Step 2 Partial *r*	ΔR^2	Step 1 Partial *r*	Step 2 Partial *r*	ΔR^2	Step 1 Partial *r*	Step 2 Partial *r*
Step 1	.44**			.30**			.43**		
AAQ-II		.32**	.28**		.26**	.23**		.38**	.35
Strategies		.38**	.36**		.28**	.27**		.30**	.28**
Step 2	.02**			.01*			.02**		
AAQ-II × strategies			.18**			.11*			.21**

$N = 332$. * $p < .05$; ** $p < .01$ (two-tailed). *AAQ-II* Acceptance and Action Questionnaire-II, *Strategies* Difficulties in Emotion Regulation Scale-strategies, *DASS-21* Depression, Anxiety, Stress Scale-21-item version

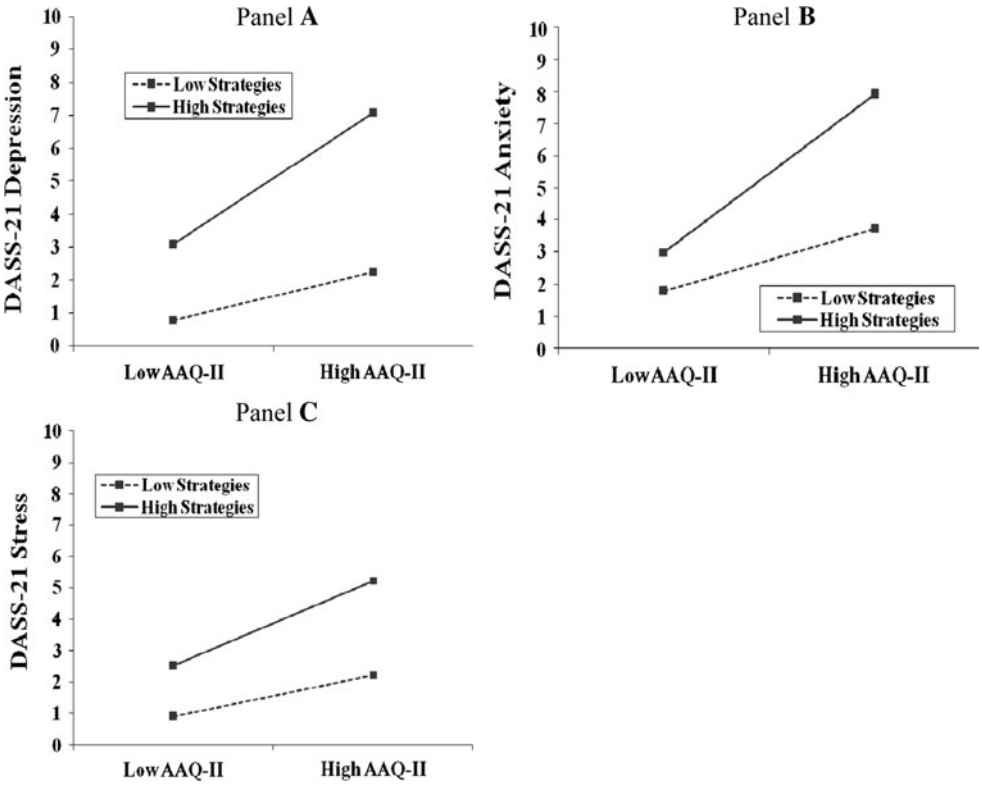

Fig. 1 Simple effects of interaction between Acceptance and Action Questionnaire-II (AAQ-II) and Difficulties in Emotion Regulation Scale-strategies (DERS-Strategies) predicting Depression, Anxiety, Stress Scale-21 depression (**a**), anxiety (**b**), and stress (**c**). Low points represent value at −1SD from respective mean score; High points represent value at +1SD from respective mean score

findings by examining whether the observed moderating effect extends to *changes* in emotional distress. Examining whether EA relates to changes in emotional distress in response to laboratory-based tasks has been an interest of researchers within the EA literature (e.g., Feldner et al. 2003; Sloan 2004). Such studies have identified that high levels of EA are associated with increased emotional distress following the completion of emotionally negative laboratory-based tasks. Further, Shallcross et al. (2010) found data to suggest that EA only relates to increased negative emotional experiences under stressful situations. More specifically, Shallcross et al. found that EA was significantly related to increased emotional distress in response to an emotionally negative, but not emotionally neutral, laboratory-based task.

In Study 2, we sought to further clarify Study 1 findings and build upon prior laboratory-based studies by investigating whether emotion regulation expectancies potentiated the relationship between EA and negative affect following an emotionally negative task. Following from the pattern of results observed in Study 1, we predicted that EA would relate to significantly heightened negative emotional experiences (i.e., negative affect) when individuals perceive themselves as being inadequate in regulating negative emotional states. Following from Shallcross et al. (2010), we further predicted that the moderating effect of such expectancies would be found following an emotionally negative, but not neutral, laboratory task.

Study 2

Method

Participants

The sample consisted of 97 (emotionally neutral task: $n = 50$; emotionally negative task: $n = 47$) undergraduate students enrolled in an introductory psychology class at a Midwestern US University. Students received partial course credit for participation. The sample had a mean age of 19.2 (SD = 1.9) years and was predominantly female (57.7 %). The majority of the sample self-identified as Caucasian (57.7 %), with a relative minority number of participants self-identifying as African American (23.7 %), Hispanic (9.3 %), Asian (5.2 %), and "Other" (4.1 %).

Equipment

Self-report measures (described below) were presented using a computerized software program on a Dell Dimension desktop computer with a 19-inch monitor. Participants completed the respective laboratory-based task (described below) on a second Dell Dimension desktop with a 17-inch monitor. For each task, participants were seated approximately 50 cm from the computer screen. Both tasks required participant responding; a computer keyboard was used for this purpose. DirectRT software (version 2006.1:

Jarvis 2006) was used to present stimuli during the respective laboratory-based task.

Tasks

Emotionally Negative Task For the emotionally negative task, participants completed a dot-probe task, during which, two images appeared side by side on a computer screen (i.e., neutral–neutral or negative-neutral) for a specified duration of time (i.e., 150 ms [ms] or 500 ms). These images were followed by a dot which replaced one of the two images. Participants were instructed to press a keyboard button that corresponded to the relative position of the dot on the screen. Participants completed a total of 70 trials and the order of stimulus presentations was randomized across participants. The dot-probe task took approximately 12 min to complete. Negative (e.g., gun, mutilated hand) and neutral (e.g., light bulb, clock) images were taken from the International Affective Picture System (IAPS: Lang et al. 1999). IAPS images are supported by a large database of normative valance and arousal ratings; ratings were made on separate 1–10 scales for valence and arousal, respectively (1 = negative valence/low arousal; 10 = positive valence/high arousal: Lang et al. 1999). In the present study, negative images had mean valence and arousal ratings of 2.17 and 6.52, respectively. Neutral images had mean valence and arousal ratings of 5.12 and 2.96, respectively. The negative images had significantly lower (i.e., negative) mean valence ($t = 26.52$, $p < .01$) and significantly higher mean arousal ($t = 45.72$, $p < .01$) ratings relative to the neutral images. Negatively valenced and highly arousing IAPS images have been shown to produce negative affective states among participants in multiple studies (e.g., Erk et al. 2003; Pretz et al. 2010).

Emotionally Neutral Task For the emotionally neutral task, participants completed the Attention Network Test (ANT: Fan et al. 2002). The ANT is a stimulus response task that researchers conceptualize as emotionally neutral (Pacheco-Unguetti et al. 2010). Participants completed 24 practice trials and 288 experimental trials of the ANT. Each trial consisted of a series of four events. The ANT took approximately 20 min to complete. These events consisted of a combination of a flanker task (Eriksen and Eriksen 1974) and of a cued reaction time task (Posner 1980). The following four events occurred during each trial: (1) a centrally located fixation cross is presented for a duration from 400 to 1,600 ms, (2) one of four possible warning cue conditions is presented for 100 ms (i.e., a double cue presented above and below the fixation cross, no warning cue, a single center warning cue, a single warning cue either above or below the fixation cross), (3) the fixation cross was presented a second time for 400 ms, and (4) one of three combination of lines and arrows (a central target with two flankers to each side) were presented above or below the fixation cross. The three combinations of lines and arrows consisted of (1) a neutral condition (– –←– –), (2) an incongruent condition (←← →←←), and 3) a congruent condition (←←←←←). Participants were directed to indicate the direction of the central arrow among the combination of lines and arrows by pressing either the left or right arrow key on the keyboard as quickly and accurately as possible. Participants had a maximum time of 1,700 ms to respond. If no response was made within that time the next trial would begin.

Self-Report Measures

Acceptance and Action Questionnaire-II (AAQ-II; Bond et al. 2011) As with Study 1, the AAQ-II was used to assess EA. Higher scores on the AAQ-II are indicative of *greater* levels of EA (e.g., *I'm afraid of my feelings*).

Difficulties in Emotion Regulation Scale (DERS; Gratz and Roemer 2004) As with Study 1, the DERS limited access to emotion regulation strategies subscale (i.e., DERS-Strategies) was used to assess negative mood regulation expectancies. Higher scores on this DERS subscale are indicative of *pessimistic* emotion regulation expectancies (e.g., *When I'm upset, I believe that there is nothing I can do to make myself feel better*).

Positive and Negative Affect Schedule (PANAS; Watson et al. 1988) The PANAS is a 20-item measure that asks respondents to indicate how they have felt over a given time frame on a 1 (*very slightly or not at all*) to 5 (*extremely*) scale. State-like time instructions (i.e., moment) were used in the present study. The negative affect scale of the PANAS (i.e., PANAS-NA)—the PANAS scale of interest in the present study—contains 10 items assessing negative affect (e.g., *afraid; distressed*) and has shown adequate psychometric properties in prior studies, including moderate convergent correlations (*r*s of .51 and .56) with other indices of state distress (Watson et al. 1988).

Procedure

Participants in this study completed a larger IRB-approved study of information processing variability (Bardeen and Orcutt 2011). A subset of data from this larger study was used to examine our predictions. There was no overlap in the self-report measures reported in these two studies. Further, there were no other experimental tasks or variation in self-report measures completed by the groups of participants in the present study that might have influenced

responses on the selected tasks. Of note, the present study only examined between-subjects effects, in large part because of concerns of carryover effects following emotionally negative tasks noted by Shallcross et al. (2010). During a single experimental session, participants completed a battery of self-report questionnaires, which included a pre-task PANAS, the AAQ-II, and the DERS. Following the completion of this questionnaire battery, participants were randomly assigned to either complete the emotionally negative (dot-probe) or emotionally neutral (ANT) task. Participants then completed a post-task PANAS following the experimental task.

Data Analytic Strategy

Study predictions were tested using two hierarchical multiple regression models. Pre-task PANAS-NA was treated as a covariate in both regression models to examine *changes* in negative affect from pre- to post-task. The first regression model examined whether the emotionally negative task condition engendered significantly heightened negative affect relative to the emotionally neutral task condition. Pre-task PANAS-NA was entered into Step 1 and a dummy-coded task variable (emotionally neutral condition = "0"; emotionally negative condition = "1") was entered into Step 2 of a regression model predicting post-task PANAS-NA scores.

The second regression model examined the main study prediction that emotion regulation expectancies moderate the relationship between EA and negative emotional states. To test this study prediction, we examined whether the three-way interaction between task condition, AAQ-II, and DERS-Strategies predicted significantly heightened post-task negative affect. The task variable was again dummy-coded and both the AAQ-II and DERS-Strategies were mean-centered. The covariate (pre-task PANAS-NA) and predictor variables (task variable, AAQ-II, and DERS-Strategies) were entered into Step 1. The two-way interactions among the task variable, AAQ-II, and DER-Strategies were entered into Step 2. Finally, the three-way interaction (Task × AAQ-II × DER-Strategies) was entered into Step 3 of a regression model predicting post-task PANAS-NA scores. Graphs and simple effects were then used to examine the predicted three-way interaction (again following Aiken and West, 1991).

Results

Regression Assumptions

As with Study 1, an examination of scatterplots indicated that the regression assumptions were met for both Study 2 models. However, an examination of outliers identified one case as being highly influential (defined as > 1 $DFFITS_i$; Cohen et al. 2003) on the estimates within both regression models. This case was removed from subsequent analyses to ensure it did not unduly impact our findings. Thus, the resulting sample sizes were $n = 50$ in the emotionally neutral task condition and $n = 46$ in the emotionally negative task condition. Of note, and consistent with Study 1, multicollinearity statistics were all above recommended levels (tolerance statistics >.10; Cohen et al. 2003), indicating no robust multicollinearity problems within the regression models.

Preliminary Analyses

Descriptive statistics and zero-order correlations among the study variables are presented in Table 3. There were no significant differences in pre-task PANAS-NA (emotionally neutral: range = 10–25, $M = 13.08$, SD = 3.74; emotionally negative: range = 10–28, $M = 13.52$, SD = 4.05), AAQ-II, or DERS-Strategies scores between the two (emotionally neutral and emotionally negative) task conditions (magnitude of t values ranged from .43 to .73, *ns*).

Negative Affect Following the Tasks

Supporting the intended purpose of the tasks, post-task PANAS-NA scores were higher following the emotionally negative (range = 10–31, $M = 14.26$, SD = 5.44) than the emotionally neutral (range = 10–34, $M = 12.36$, SD = 3.96) task, with this effect evidencing a non-significant trend ($t = 1.97$, $p = .05$, two-tailed). Moreover, regression analyses, treating pre-task PANAS-NA as a covariate, revealed that the emotionally negative task (partial $r = .20$, $p = .06$, two-tailed) engendered heightened post-task PANAS-NA scores, with this effect also evidencing a non-significant trend.

Moderating Role of Limited Access to Emotion Regulation Strategies

Results from a regression analysis in which predictors of post-task negative affect were examined are presented in Table 4. As predicted, the three-way interaction between Task, AAQ-II, and DER-Strategies (partial $r = .22$) explained significant unique variance in PANAS-NA scores in Step 3 of the regression model (Step 3 $\Delta R^2 = .03$, $p < .05$).

Simple effects of the three-way interaction were broken into two-way interactions (AAQ-II × DERS-Strategies) by task condition. The simple effects in the emotionally negative task condition are depicted in Fig. 2. As shown, in the emotionally negative task condition, there was a significant

Table 3 Descriptive statistics and zero-order correlations of Study 2 variables in total sample

Variable	Range		Mean	(SD)	1	2	3	4
	Possible	Observed						
1. Pre-task PANAS-negative affect	10–50	10–45	13.29	(3.88)	(.87)			
2. Acceptance and Action Questionnaire-II	7–49	7–40	18.02	(7.30)	.40	(.89)		
3. Difficulties in Emotion Regulation Scale-strategies	8–40	8–39	15.55	(6.49)	.28	.77	(.90)	
4. Post-task PANAS-negative affect	10–50	10–34	13.27	(4.80)	.47	.39	.38	(.87)

$N = 96$. All *r*s significant at $p < .01$ (two-tailed). Cronbach's alpha coefficients listed in parentheses along the diagonal. *PANAS* Positive and Negative Affect Schedule

Table 4 Regression results predicting post-task negative affect scores in Study 2

Variable	Post-task negative affect			
	ΔR^2	Step 1 Partial *r*	Step2 Partial *r*	Step3 Partial *r*
Step 1	.04**			
Pre-task PANAS-NA		.39**	.41**	.40**
Task		.19	.17	.01
AAQ-II		.05	−.08	−.10
DERS-strategies		.17	.09	.16
Step 2	.06*			
Task × AAQ-II			.15	.18
Task × DERS-strategies		−.07	−.15	
AAQ-II × DERS-strategies		.20	−.09	
Step 3		.03*		
Task × AAQ-II × DERS-strategies		.22*		

$N = 96$. ** $p < .01$; * $p < .05$ (two-tailed). *PANAS-NA* Positive and Negative Affect Schedule-negative affect; task (Dummy-Coded Variable: 0 = Emotionally Neutral Task; 1 = Emotionally Negative Task), *AAQ-II* Acceptance and Action Questionnaire-II, *DERS-Strategies* limited access to emotion regulation scale of Difficulties in Emotion Regulation Scale

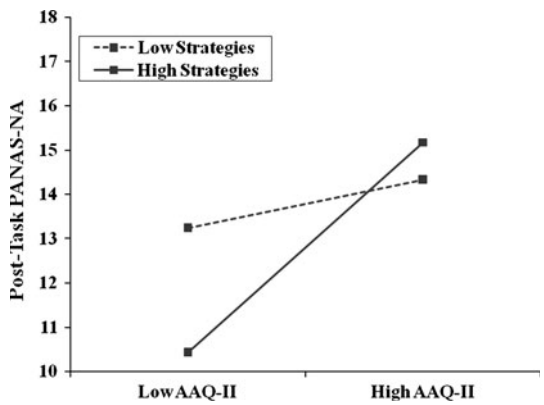

Fig. 2 Simple effects of interaction between acceptance and action questionnaire-II (AAQ-II) and Difficulties in emotion regulation scale-strategies (DERS-Strategies) predicting scores of positive and negative affect schedule-negative affect (PANAS-NA) in emotionally negative task condition. Low points represent value at −1SD from respective mean score; High points represent value at +1SD from respective mean score

positive relationship between the AAQ-II and post-task negative affect scores at high (simple effect: partial $r = .30$, $p < .05$), but not low (simple effect: partial $r = .19$, *ns*), levels of DERS-Strategies. In the emotionally neutral task condition, there was no significant association between the AAQ-II and post-task negative affect scores at both high (simple effect: partial $r = -.20$, *ns*) and low (simple effect: partial $r = -.04$, *ns*) levels of DERS-Strategies.

Study 2 Summary

Study 2 extended Study 1 findings by examining the proposed moderating effect of emotion regulation expectancies on the EA-emotional distress relation using a laboratory-based task. Consistent with Study 1, following an emotionally negative laboratory task, EA was associated with significantly heightened negative affect among participants who perceived themselves as lacking the ability to regulate negative emotions. This pattern of relations was not observed following the emotionally neutral laboratory task, which is consistent with prior findings (Shallcross et al. 2010) and suggests a degree of specificity in the effect. Overall, the results from the present set of studies support our proposal that emotion regulation expectancies are important for explicating when and how EA relates to emotional difficulties.

General Discussion

The present set of studies examined emotion regulation expectancies as a moderator of the association between EA and negative emotional experiences. Across studies, negative mood regulation expectancies potentiated relations between EA and (a) psychological symptoms (depression, anxiety, and stress) in Study 1 and (b) changes in negative affect following an emotionally negative laboratory-task in Study 2. It should be noted that simple effects revealed that EA and psychological symptoms still shared a significant positive correlation even when individuals held relatively optimistic emotion regulation expectancies (as reflected by low DERS-Strategies scores) in Study 1. In Study 2 however, simple effects revealed that EA shared a non-significant correlation with changes in negative affect following the emotionally negative task when individuals held relatively optimistic emotion regulation expectancies. These divergent patterns of relations are likely a reflection of differences in sample sizes across studies, as the magnitude of the slope of the simple effect depicting the relation between EA and negative emotional states at low levels of DERS-Strategies was relatively consistent across studies (Study 1: simple effect partial *r*s ranged from .11 to .15; Study 2: simple effect partial $r = .19$ in emotionally negative task condition). The larger Study 1 sample thus likely allowed us to detect the relatively small relation between EA and negative emotional states when individuals held optimistic emotion regulation strategies.

The observed interactive effect between EA and emotion regulation expectancies is consistent with prior findings reported by Kashdan et al. (2008), who found that emotion regulation expectancies moderated the relation between anxiety sensitivity, a vulnerability factor conceptually and empirically related to EA, and negative emotional states. When considering both Kashdan et al.'s findings and the present results, it appears that holding negative beliefs about unwanted inner experiences (e.g., anxiety sensitivity, EA) is particularly maladaptive when individuals perceive themselves as unable to regulate negative emotional states. As previously noted, EA is associated with the use of avoidant coping strategies in response to unwanted inner experiences (Hayes et al. 1996). As such, the present research might provide indirect support for the notion that the impact of avoidant coping on negative mood states might be best conceptualized by considering its interactive effect with emotion regulation expectancies. This possibility is consistent with Catanzaro and Greenwood (1994), who opined that "active coping efforts, even if they solve a problem, may have little effect on reducing negative moods unless the individual believes that such an outcome will result" (p. 42). Thus, by extension, avoidant coping efforts may have relatively little effect on exacerbating negative mood states unless the individual believes that there is little that can be done to regulate emotions effectively. The present pattern of relations is consistent with such a possibility.

The possibility that negative mood regulation expectancies inform our understanding of the emotional impact of avoidant coping responses has important implications for theories of emotion regulation. In particular, gaining greater insight into the conditions under which avoidant coping responses relate to negative mood states is an empirical question of interest to emotion regulation researchers. For example, Hofmann et al. (2012) asserted that the use of avoidant coping responses is likely adaptive in certain situations and becomes maladaptive when such coping responses are inflexibly used irrespective of situational demands. The present results, as well as findings described elsewhere (Chawla and Ostafin 2007), provide indirect support for Hofmann et al.'s assertion. More specifically, EA, which parallels the emotional inflexibility described by Hoffman et al., has been found to share significant positive correlations with negative emotional states across a number of studies. However, the interactive effect between EA and negative mood regulation expectancies observed in the present research suggests that the inflexible use of avoidant coping responses alone might only have a modest impact on one's emotional state. Rather, the present results indicate that an inflexible use of avoidant coping relates to heightened levels of negative emotional states only when such a coping style is coupled with doubt surrounding one's capacity to regulate negative emotions. It is important to note that these potential associations among avoidant coping responses, negative mood regulation expectancies, and negative emotional states must be considered in light of the limitation that there was no assessment of how participants actually regulated their emotions in the present research. Thus, future studies in which coping behavior is directly assessed, and potentially manipulated, will likely more directly speak to the relative importance of negative mood regulation expectancies on the relation between avoidant coping and emotional difficulties.

Theorists note that emotion regulation expectancies are an important target of psychological interventions. For example, Berking et al. (2008) found that training in emotion-focused self-efficacy, which is designed to improve one's perceived ability to regulate emotions, was a useful adjunct to cognitive-behavioral interventions. The present results are consistent with Berking et al.'s findings, as they highlight the potential importance of emotion regulation expectancies for understanding emotional difficulties. Moreover, results from Berking et al. provide the strongest support for approaches that target emotional self-efficacy *and* incorporate acceptance-based techniques (e.g.,

Hayes et al. 2006). The present results suggest that such an approach might be useful for ameliorating the joint impact of EA and one's perceptions relating to a lack of emotional regulation abilities.

These findings must be considered with the following limitations in mind. First, although the experimental nature of Study 2 was one of its strengths, Study 2 data were gathered from a larger study that included non-parallel tasks. Thus, it is possible that idiosyncrasies of the tasks might have influenced Study 2 results. For example, the two tasks differed in their duration and underlying premise. Such idiosyncrasies might have led to differences across tasks that were not assessed, including inattention and fatigue. However, the tasks largely functioned in their expected manner (i.e., the emotionally negative task evidenced heightened negative affect relative to the emotionally neutral task). Moreover, the results obtained in the emotionally negative task condition largely paralleled Study 1 results and were consistent with the pattern of results from prior studies using other emotionally neutral tasks (e.g., Shallcross et al. 2010). Thus, it is unlikely that Study 2 findings were the result of task differences. Nonetheless, the emotionally negative task used in the present research seemed less effective than other tasks described in the extant literature (e.g., film clips; Shallcross et al. 2010). Thus, future studies might seek to replicate the present findings through the use of more traditional, and parallel, mood manipulation tasks. Second, participants endorsed relatively low levels of symptomatology in Study 1 and we examined emotional reactions in response to a laboratory-based task in Study 2. As such, our findings might have limited generalizability to other populations of interest (e.g., treatment-seeking populations), as well as to more naturally-occurring emotional experiences.

Third, the magnitude of relations among the study variables may have been inflated as a result of our fixed order self-report method of assessment. However, correlated measurement error—which might be expected with monomethod assessment—does not appear to produce spurious interactions; rather, it may attenuate them (Evans 1985). This assessment limitation is therefore not likely responsible for the observed significant interaction effects. One important extension of the present findings will be to investigate the assessed constructs using alternative methodologies. For example, although our use of self-report measures is consistent with the bulk of the extant literature interested in examining EA and dimensions of emotion regulation, respectively, limitations surrounding the use of this methodology to assess these constructs have been put forth (e.g., see Chawla and Ostafin 2007; Cisler et al. 2010). Finally, the observed interactive effect was only modest in size across studies and the cross-sectional nature of our study design limits important conclusions that can be drawn. As described, the replication and extension of this interactive effect using alternative research designs will be important in elucidating the robustness and importance of this observed effect.

Limitations notwithstanding, the present results provide an important step in further understanding the relation between EA and emotional difficulties. In particular, the present findings suggest that expectancies of one's emotion regulation abilities might be important for understanding when EA relates to emotional difficulties in response to negative experiences. Further clarifying these observed effects in future studies might ultimately improve extant conceptualizations of emotion regulation and treatment efforts.

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