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Understanding the utility of emotional approach coping: evidence from a laboratory stressor and daily life

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Abstract

Background—Dispositional emotional approach coping (EAC) marks an adaptive tendency to process and express emotions. EAC’s association with cognitions, affect, and intra- and interindividual characteristics that may account for its utility was examined in response to an acute stressor and in daily life.

Design—This study included a laboratory stress task and ecological momentary assessment.

Methods—Healthy undergraduate students ($n = 124$; mean age: 20; women: 56%) completed a laboratory component (baseline survey, speech stress task, pre- and posttask measures) and five subsequent days of surveys via palm pilot (six surveys/day).

Results—Controlling for sex, neuroticism, and social support, greater EAC was associated with more positive cognitive appraisals, personal resources, and positive affect and less-negative affect during the lab stressor, and with more perceived control and positive affect in daily life. Significant EAC \times sex interactions were found for poststressor affect: men with high EAC reported more positive affect and women with high EAC reported less negative affect.

Conclusions—Findings provide support that EAC’s utility may be independent of intra- and interindividual characteristics, and that men and women may benefit from EAC in different ways in regards to affect. The proclivity to use EAC may come with a resiliency that protects against stress and promotes general well-being.

Keywords

emotional approach coping; laboratory stressor; ecological momentary assessment; affect; cognition

Introduction

From our personal relationships to our work environments, we engage in coping to deal with stressors and everyday circumstances. Coping may be defined as “cognitive and behavioral efforts to manage specific external and/or internal demands that are appraised as taxing or exceeding” our personal resources (Lazarus & Folkman, 1984, p. 141). Although there are a number of effective ways to cope, people tend to rely on specific styles over others and develop coping dispositions or traits. Differences in trait-like coping are important in that

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they play a significant role during stressful encounters and in our daily lives (e.g., Kashdan, Barrios, Forsyth, & Steger, 2006). The current study examined how dispositional emotional approach coping (EAC) relates to cognitions and affect in the context of a laboratory stress task and in daily life.

Emotional approach coping

EAC is considered an adaptive emotion-focused coping style in which individuals engage in their emotions (Stanton, Kirk, Cameron, & Danoff-Burg, 2000). Specifically, EAC refers to one's "efforts to palliate negative emotions surrounding" a situation or an event (Stanton, Danoff-Burg, et al., 2000, p. 1150). It consists of two primary components including *emotional processing*, the acknowledgment, understanding, and acceptance of one's emotions, and *emotional expression*, the verbal or nonverbal disclosure of one's emotions. Individuals who rate high on dispositional EAC would, therefore, be likely to try to understand their emotions and disclose them to others when they encounter a stressful experience and in general day-to-day circumstances.

EAC belongs to a broader range of emotion-focused coping strategies that have been linked to positive psychological and physical health (e.g., Smith, Lumley, & Longo, 2002; Stanton, Danoff-Burg, et al., 2000), as well as adjustment to stress (Kashdan et al., 2006). Its benefits span across a wide range of stressors and settings (Stanton, 2011; Stanton & Low, 2012a; Stanton, Sullivan, & Austenfeld, 2009). *Dispositional* EAC has been linked to better quality of life and psychological health among cancer and chronic myofascial pain patients (Smith et al., 2002; Stanton, Kirk, et al., 2000; Terry & Hynes, 1998), greater positive meaning-making in patients' caregivers (Pakenham, Sofronoff, & Samios, 2004), as well as better well-being among individuals disclosing their sexual orientation to others (Beals, Peplau, & Gable, 2009). Likewise, *situational* EAC has shown utility for dealing with specific circumstances or stressors. For instance, couples coping with infertility showed lower psychological distress if they used EAC (Berghuis & Stanton, 2002), and group interventions promoting the use of EAC among couples coping with breast cancer lead to improved psychological well-being over time (Manne, Ostroff, & Winkel, 2007).

Nevertheless, the proclivity to process and express emotions might not be uniformly associated with adjustment (Kohn, 1996). Emotional processing and expression are likely to be unhelpful for adjustment among individuals with low dispositional EAC or who naturally prefer a different coping style (Kraft, Lumley, D'Souza, & Dooley, 2008; Stanton, Danoff-Burg, et al., 2000), perhaps because it is uncomfortable for them. This highlights the importance of distinguishing between trait and state coping as they may rely on different cognitive and affective factors in order to confer adjustment (Lazarus, 1999). The current study specifically focuses on *dispositional* EAC, hereto called EAC.

The role of cognition and affect

A review by Stanton and Low (2012a) proposes several factors through which EAC could lead to positive adjustment, namely: cognitive appraisal, perceived personal resources, and affect labeling. Akin to Lazarus and Folkman's (1984) primary and secondary appraisal processes, EAC may facilitate adjustment by promoting less-threatening appraisals of a

specific stressor or environment (*cognitive appraisal*), and by enhancing one's sense of confidence in or control over managing the stressor or environment (*perceived personal resources*). That is, EAC may be adaptive because individuals who dedicate time to processing and expressing emotions may be more readily able to identify their emotions about a potentially stressful event (Lazarus & Folkman, 1984), which enables them to more easily and quickly deal with the emotions. In turn, this provides two benefits. First, it makes the individual perceive the event as a challenge to overcome rather than as a threat. Second, it makes the individual feel more equipped (i.e., perceive to have more personal resources) to manage the situation. Therefore, dispositional EAC may come with a resiliency that minimizes one's negative cognitive appraisals of a stressor and boosts one's perceived ability to manage or overcome it.

Lastly, EAC may yield positive health outcomes by increasing positive and mitigating negative feelings (*affect*). Preliminary evidence shows that individuals with higher levels of EAC report more positive and less negative affect (e.g., Berghuis & Stanton, 2002). Moreover, appraisal-based models of emotion (Lazarus, 1999) and empirical research (see Pressman & Cohen, 2005) identify affective responses to stressors or general affective states as critical determinants of adjustment. It is thought that the link between EAC and stressor-related affect is attributable to a proposed tendency for "affect labeling" among individuals with greater EAC whereby emotion-focused coping helps to mitigate negative affect and boost positive affect (Stanton & Low, 2012b).

In sum, it has been theorized that cognitive appraisals, personal resources, and affect may be pathways through which EAC confers benefits. To our knowledge, no study to date has specifically focused on how EAC relates to these adaptive factors that may partially account for the salubrious outcomes associated with this coping trait.

Intra- and interindividual characteristics

Another complexity to understanding EAC is that its utility may be related to inter- and intraindividual characteristics. Research suggests that perceived social support may be one of the interindividual factors underlying EAC's utility (Hoyt, 2009; Stanton, Danoff-Burg, et al., 2000). Expressing emotions to supportive social network members may help individuals perceive a stressor less negatively, feel more equipped to manage it, and have a more positive and less negative affective response to it. Engaging in emotional processing with receptive others may also lead individuals to perceive less stress in daily life and provide them with a general sense of control and emotional well-being. Therefore, examining EAC's association with the proposed cognitive and affective factors should consider the role of perceived *social support*.

In addition, persons' sex and personality are two intraindividual characteristics that have been linked with EAC. The evidence regarding *sex differences* is inconsistent. Some research shows that EAC may be more adaptive for women than for men (Stanton, Danoff-Burg, Cameron, & Ellis, 1994), whereas other findings indicate beneficial outcomes for both sexes (Berghuis & Stanton, 2002). Another study found that emotion-focused coping had a negative impact on men but not women who disclosed their sexual orientation to others (Beals et al., 2009). Therefore, how a person's sex may be associated or interact with EAC

requires further investigation. Regarding personality, the evidence is limited. Personality attributes, particularly *neuroticism*, may play a part in emotional experiences (Costa & McCrae, 1980). Neuroticism has been linked with a heightened sensitivity to threat and anxiety (Carver & Connor-Smith, 2010) and is negatively correlated with EAC (e.g., Stanton, Kirk, et al., 2000, Study 1). Thus, individuals with high levels of EAC may experience more adaptive cognitions and affective states because they have a reduced vulnerability to acute stress and hassles in daily life (i.e., lower levels of neuroticism).

In short, the exact nature of how these intra- and interindividual characteristics of social support, sex, and personality are linked to EAC is not conclusive, although they could account for at least part of its utility. Therefore, it is plausible that these characteristics may contribute to the observed differences in cognitions and affective states experienced in the context of acute stressors and daily life. Further research is needed to answer *whether* and *how much* these characteristics account for the associations between EAC and cognitive appraisals, perceived personal resources, and affect.

Current study

The current study had two primary aims. The first aim was to examine the association between EAC and the cognitive and affective factors through which its benefits could be conferred. This would provide preliminary evidence for identifying potential mechanisms through which this coping style facilitates adjustment. The second aim was to demonstrate EAC's utility as distinct from related intra- and interindividual characteristics (sex, neuroticism, and social support). This would test whether EAC's relation to the adaptive cognitive and affective factors is independent of or attributable to these characteristics. In addition, we examined the potential interactive role of participants' sex to address the current inconsistencies in the literature on the differential EAC-related experiences and outcomes among men and women.

Two separate study components tested these aims. A laboratory speech task was used to assess EAC in an acute stressor context. In addition, an ecological momentary assessment (EMA) method was used to examine EAC in a daily life context. This multimethod approach could extend our understanding of EAC in three important ways. First, coping is a "process oriented" effort that necessitates examining individuals' cognitions and affect as a stressor is encountered and unfolds (Folkman, Lazarus, Dunkel-Schetter, DeLongis, & Gruen, 1986). The use of a laboratory speech task will enable us to assess whether individuals differing on EAC have different (more adaptive) cognitions before and after a standardized stressor, as well as more adaptive stressor-related affective responses. It was hypothesized that individuals with higher EAC would report less-threatening appraisals of the task, more personal resources to manage the task, and more positive and less negative affective responses to the task. Second, the current study extends the existing literature by utilizing EMA, a data capturing technique that provides a dynamic picture of daily life (e.g., Smyth & Stone, 2003). Whereas many previous studies have relied on global measures to obtain assessments, EMA allows the capture of momentary reports (that are not subject to the same recall biases) of cognitions and affect in participants' natural environments. EAC was hypothesized to be associated with less-perceived stress, greater sense of control, and

more positive and less negative affect in daily life. Third, assessing the same individuals in two different contexts will enable us to examine the generalizability of our laboratory results to the natural environment. This could provide evidence for EAC's consistency within stressor contexts versus daily life more generally and potentially provide evidence for a personality profile that spans across both contexts.

Methods

Participants

Undergraduate student participants were recruited via online advertisements on a university website and flyers posted at central campus locations (e.g., student center). Due to physiological assessments taken for a different part of this study, individuals were not eligible to participate if they: were a regular smoker, were diagnosed with a chronic medical or psychiatric condition or sleep disorder, were under the age of 18, were unable to complete study materials in the English language, typically woke up later than 10:00 am on weekdays, and for women, were pregnant or taking oral contraceptives.

The study enrolled 124 participants 18–36 years of age ($M = 20$, $SD = 2.07$) of which 56% were women ($n = 70$). The sample consisted of 59% Asian-American, 14% Caucasian, 10% Hispanic, 10% Middle-Eastern, and 7% other ethnicities. All participants completed the laboratory component and 117 participants (55% women, $n = 64$) completed the daily life component (seven participants did not complete or did not return the study materials for the daily life component). The participants who did not complete both components did not differ on EAC ($p = .43$), age ($p = .99$), sex ($p = .11$), or ethnicity ($p = .13$) from those who completed both components.

Procedures

The laboratory stressor and daily life components were completed sequentially over the course of one week. At an initial laboratory visit (approximately 2 hours), participants were given a complete study description and gave their informed consent for both components prior to completing a series of questionnaires during a 40-minute baseline period.

For the laboratory component, an adapted version of the Trier Social Stress Test (TSST; Kirschbaum, Pirke, & Hellhammer, 1993), a widely used laboratory stressor, was used. Two confederates dressed in white lab coats told participants that they would be delivering a 5-minute speech on why they would be good applicants for a job. Next, participants completed a brief prestressor survey about their cognitive appraisals and personal resources regarding the speech and were given 10 minutes to prepare their speech. They then delivered the speech in front of the two confederates (evaluative audience) who did not speak throughout the task and displayed nonverbal behaviors of boredom and disinterest. After the speech, participants completed a brief poststressor survey about their cognitive appraisals, personal resources, and affect.

After the laboratory stressor, they were debriefed on this component of the study (e.g., why the speech stressor was used, the role of the evaluators, etc.). They next received instructions and materials for completing the daily life component. For this portion of the study,

participants completed six surveys per day for the five days following the initial laboratory visit. They received five paper booklets to complete each morning upon waking (Time 1), and a handheld Palm Pilot that was pre-programmed to beep (or light up during silent mode) every two hours from 12:00 pm–8:00 pm (Times 2–6). At the end of the study, participants returned all study materials, were debriefed, and received \$70 compensation. All relevant review boards approved the study procedures.

Baseline measures

Affect—Participants completed the 20-item PANAS scale assessing positive affect (PA; 10 items, e.g., happy and interested) and negative affect (NA; 10 items, e.g., sad and angry; Watson, Clark, & Tellegen, 1988). Participants reported on the extent to which they felt each emotion over the past month on a scale from 1 (*very slightly or not at all*) to 5 (*extremely*). Higher scores indicate greater amount of positive or negative affect (Cronbach's $\alpha = .90$ and $.84$, respectively).

Anxiety symptoms—Twenty items from the State-Trait Anxiety Inventory (STAI; Spielberger, Gorsuch, Lushene, Vagg, & Jacobs, 1983) were used to assess participants' anxiety symptoms. Sample items include: "I am worried," "I am tense," and "I am content." Participants reported how much they felt each item during the past month on a scale from 1 (*almost never*) to 5 (*almost always*). Some items were reverse coded and then an average score was created across all items. Higher scores indicate greater anxiety (Cronbach's $\alpha = .89$).

Demographics—Participants answered items about their sex (male coded 1), age, and ethnicity. Given the small number of participants in the various non-Asian groups (e.g., Caucasian, Hispanic, etc.), ethnicity was dichotomized for analyses into Asian-American (coded 1) and Other (coded 0).

Depressive symptoms—Depressive symptoms were assessed with the 20-item Center for Epidemiologic Studies Depression Scale (CESD; Radloff, 1977). Items asked participants to rate how often they experienced each symptom during the past month on a scale from 1 (*rarely*) to 4 (*most of the time*). Sample items include: "I felt fearful" and "I felt lonely." Some items were reversed coded and then an average score was created across all items. Higher scores indicate greater depressive symptoms (Cronbach's $\alpha = .82$).

Emotional approach coping—Participants completed 16 items about what they "generally do and feel when [they] experience stressful events" to assess emotional approach coping (Stanton et al., 1994). There are two subscales: emotional processing (EP) and emotional expression (EE). The EP subscale includes items such as: "I take the time to figure out what I'm really feeling" and "I delve into my feelings to get a thorough understanding of them." The EE subscale includes items such as: "I take time to express my emotions" and "I let my feelings come out freely." Items were rated on a scale from 1 (*I usually don't do this at all*) to 4 (*I usually do this a lot*). Average scores were calculated for EAC, EE, and EP (Cronbach's $\alpha = .92$, $.91$, and $.95$, respectively).

Neuroticism—Eight items from the 44-item Big Five Inventory (John & Srivastava, 1999) were used to assess participants' neuroticism. Participants rated how much they agreed with each item on a scale from 1 (*strongly disagree*) to 5 (*strongly agree*). Sample items include: "can be tense," "get nervous easily," and "worry a lot." A neuroticism summary score was calculated from all eight items (Cronbach's $\alpha = .84$).

Social support—Participants' global social support was assessed with the 12-item Interpersonal Support Evaluation List (Cohen, Mermelstein, Kamarck, & Hoberman, 1985). Sample items include: "There are several different people I enjoy spending time with." and "I feel like I'm not always included by my circle of friends." Participants are asked to indicate how much each item is generally true for them on a scale from 0 (*definitely not true for me*) to 3 (*definitely true for me*). An average score was created across all items. Higher scores indicate greater social support (Cronbach's $\alpha = .70$).

Laboratory stressor measures

Several items were drawn from the pre- and poststressor questionnaires and categorized as cognitive appraisals and personal resources. When more than two items were used to assess a construct, we used exploratory factor analyses (EFA) to examine whether the selected items are loaded on these constructs (details are listed below for each construct). EFA was conducted in SPSS V.19 with an Oblimin (oblique) rotation with assumed correlated factors (Delta = .20). Several well-recognized criteria for between-item correlations were used (Costello & Osborne, 2005). First, all Kaiser–Meyer–Olkin measures of sampling adequacy suggested that the sample was factorable for each construct (KMO > .60). Second, all constructs yielded significant chi-square results for Bartlett's test of sphericity, showing that the factor model is appropriate. Third, all items demonstrated factor loadings > .30 on their respective constructs. Fourth, all communalities were above the minimum .30 requirement, further demonstrating the shared common variance among each construct's items. Combined, these criteria requirements are considered conservative because they require significant scale level test results before significant item level associations are examined. Scree plots indicated that one-factor solutions would be appropriate for each construct. After the items for each construct were finalized, an average score was calculated for all constructs that consisted of more than one item.

Prestressor cognitive appraisal—Participants rated "How threatening do you expect the upcoming task to be" on a scale from 1 (*not at all*) to 6 (*very much*) to assess their appraisal of the upcoming speech task.

Prestressor personal resources—Participants rated their perceived personal resources for coping with the upcoming speech task on a scale from 1 (*not at all*) to 6 (*very much*) on three items: How able are you to cope with the task?; How confident do you feel about the task?; How competent do you feel about the task? EFA showed that these items explained 79% of the variance in the prestressor personal resources factor and demonstrated high factor loadings (.72, .97, and .79, respectively; Cronbach's $\alpha = .85$).

Poststressor cognitive appraisal—Participants rated their cognitive appraisal of the stress task after it was completed on a scale from 1 (*not at all*) to 7 (*very much*) on three items: This task was difficult; Overall, I thought the task was threatening; Overall, I thought the task was stressful. EFA showed that these items explained 72% of the variance in the poststressor cognitive appraisal factor and demonstrated high factor loadings (.74, .59, and .95, respectively; Cronbach's $\alpha = .81$).

Poststressor personal resources—Participants rated their perceived ability to manage the speech task on a scale from 1 (*not at all*) to 7 (*very much*) on two items: During the task, I felt confident; During the task, I felt in control (Cronbach's $\alpha = .81$).

Poststressor affective responses—Participants were given the same 20 items from the baseline PANAS for a second time to assess their affective responses to the stressor. They were asked how much they felt each emotion during the speech task. Items were averaged separately for negative affect (Cronbach's $\alpha = .90$) and positive affect (Cronbach's $\alpha = .90$).

Daily life measures

All six daily surveys asked participants to report on their thoughts and feelings since waking up (Time 1) or since the last beep (Time 2–6). Participant compliance rate across the 5 days for the EMA surveys was 73%, which is consistent with what has been observed in studies with similar populations (e.g., Heron & Smyth, 2013). Compliance was not significantly correlated with EAC ($p = .06$).

Affect—Daily affect was assessed using the same items from the baseline PANAS measure. Participants answered to what extent they felt each emotion since the last beep. Items were averaged separately at each time point and across the six daily time points to form five daily averages for positive affect and negative affect (10 total; Cronbach's $\alpha = .92$ and $.86$, respectively).

Perceived stress—To assess perceived stress, participants answered the following question on a scale from 0 (*never*) to 4 (*very often*): “How often have you felt stressed?” The item was averaged across the six time points each day to form five daily averages (Cronbach's $\alpha = .82$).

Sense of control—Participants answered the following question on a scale from 0 (*never*) to 4 (*very often*) to indicate their sense of control: “How often have you felt in control?” The item was averaged across the six time points each day to form five daily averages (Cronbach's $\alpha = .90$).

Social support—Perceived social support in daily life was assessed at the last beep of the day. Participants reported on a scale from 1 (*not at all*) to 5 (*extremely*) how much they agreed with the following statements on that day: “I felt accepted by others and connected to them.”; “I had enjoyable/fun times socializing with others.”; “I had a conflict/disagreement with others.”; “I felt that others responded to my needs/wishes.”; “I felt out of touch/

disconnected from others.” Responses for the latter two statements were reverse coded and averaged with the former statements to obtain each day’s average social support for all five days (Cronbach’s $\alpha = .58$).

Analytic plan

Preliminary analyses were conducted to obtain descriptive statistics for EAC, baseline variables, and the laboratory and daily life components. All analyses used EAC as a continuous variable.

For the laboratory component, separate ordinary least squares (OLS) regression models were conducted to examine the association between EAC and the pre- and poststressor outcomes controlling for sex, neuroticism, and baseline social support. Analyses were conducted using average scores because not all constructs had factor scores (i.e., some contained less than three items). Covariates were entered in Step 1 and EAC was entered in Step 2. Finally, centered $EAC \times sex$ interactions were added to each model. Variance inflation factors were examined for multicollinearity.

For the daily life component, Generalized Estimating Equations (GEEs) were conducted in order to account for the correlation of the outcomes over the five days. A forced autoregressive correlation structure was specified to indicate smaller correlations as distance between time points (i.e., days) increased and to maintain a larger sample size because unequal time measurements would otherwise exclude a substantial number of cases. Conducting analyses without a forced autoregressive correlation yielded the same pattern of results. Each outcome was run in a separate GEE model, controlling for sex, neuroticism, and daily social support and with EAC as the main predictor. Standardized beta coefficients were calculated from the unstandardized coefficients in the final model using this formula: $\beta_{yx} = b_{yx}(s_x/s_y)$ (Cohen, Cohen, West, & Aiken, 2003). For daily positive and negative affect, the corresponding baseline affect was controlled in the analyses. Finally, centered $EAC \times sex$ interactions were added to each model.

Results

Descriptives

Table 1 presents descriptive statistics for all baseline measures, laboratory stressor outcomes, and daily life outcomes. EAC was not significantly correlated with baseline positive affect ($p = .14$), negative affect ($p = .86$), neuroticism ($p = .51$), or perceived social support ($p = .17$). In the current study, depressive symptoms were slightly lower than a mean of 15.5 found among other college students (e.g., Radloff, 1989), and anxiety symptoms were slightly higher than the mean range of 36.47 – 40.54 observed in college students elsewhere (e.g., Spielberger et al., 1983). EAC was not significantly correlated with depressive symptoms ($p = .60$), anxiety symptoms ($p = .96$), or ethnicity ($p = .99$). Independent sample t -tests showed that women ($M = 44.40$, $SD = 8.95$) reported significantly higher levels of EAC than men ($M = 39.59$, $SD = 10.03$; $t(122) = 2.813$, $p = .01$). For EAC’s subscales, EE ($M = 22.33$, $SD = 5.68$) and EP ($M = 19.89$, $SD = 6.22$) were

moderately correlated ($r = .321, p < .001$), which is a weaker relation than found in other studies (e.g., $r = .45$; Stanton, Kirk, et al., 2000, Study 3).

Laboratory component

EAC—Results for EAC and the prestressor outcomes are shown in Table 2.¹ Cohen's guidelines were used to interpret effect sizes (small = 0.1, medium = 0.3, large = 0.5; Cohen, 1988). The associations between prestressor cognitions and EAC showed small to medium effect sizes. Controlling for sex, neuroticism, and social support, individuals with higher levels of EAC perceived the upcoming stressor as less threatening than those with lower levels of EAC. Individuals with higher levels of EAC also reported a greater sense of personal resources (indexed by greater perceived confidence, competence, and ability to cope) to manage the upcoming stressor.

Results for EAC and the poststressor outcomes are shown in Table 3; all analyses controlled for sex, neuroticism, and social support. The associations between poststressor cognitions and EAC showed small effect sizes. Individuals with higher levels of EAC reported more posttask positive cognitive appraisals (indexed as perceiving the task to be less difficult, threatening, and stressful). Individuals with higher levels of EAC also reported significantly more personal resources (indexed as feeling confident and a sense of control) during the stressor. For poststressor affective responses, the associations between positive affect and EAC and between negative affect and EAC showed medium and small effect sizes, respectively. Individuals with greater EAC reported more positive affect and less negative affect when all covariates and the corresponding baseline affect were included in the models.

Sex differences—As shown in Figure 1a and 1b, sex of the participant moderated the effects of EAC on poststressor positive and negative affect. For positive affect, men with high EAC reported significantly more positive affect than women ($\beta = .348, b(SE) = .042(.014), p = .003; F(3, 120) = 12.247, p < .001$). Simple slopes analyses indicated that men with greater EAC reported more positive affect ($\beta = .550, b(SE) = .053(.011), p < .001; F(1, 53) = 22.600, p < .001$), whereas women with differing levels of EAC did not vary on positive affect ($p = .19$). For negative affect, women with high EAC reported significantly less negative affect than men with high EAC ($\beta = .299, b(SE) = .040(.017), p = .02; F(3, 120) = 4.509, p = .02$). Simple slopes analyses showed that women with greater EAC reported less negative affect ($\beta = -.328, b(SE) = -.035(.013), p = .01; F(1, 66) = 7.818, p = .01$), but indicated no differences among men with varying levels of EAC ($p = .68$). In sum, men and women with a proclivity to use EAC report different benefits during an acute stressor: men report higher positive affect, whereas women report lower negative affect.

Daily life component

EAC—Table 4 shows the relationship between EAC and daily life outcomes, controlling for sex, neuroticism, and daily social support. EAC did not significantly predict daily perceived stress. Consistent with hypotheses, EAC was associated with greater feelings of control,

¹Using factor scores instead of average scores yielded the same pattern of results.

which was a moderate effect. The effect for positive affect was moderate to large, indicating that individuals with higher EAC reported more positive affect on a daily basis. No significant differences in daily experiences of negative affect were found. Post-hoc analyses showed that even when the models excluded the covariates, EAC still did not predict perceived stress or negative affect. Moreover, replacing daily social support with baseline (global) social support yielded the same pattern of results for all outcomes.

Sex differences—EAC by sex interactions were not significant. Participants' sex did not moderate the association between EAC and perceived stress ($p = .34$), perceived sense of control ($p = .83$), positive affect ($p = .98$), or negative affect ($p = .11$) in daily life.

Discussion

This study extends previous investigations of EAC by using two distinct methodologies to understand how individuals' coping styles relate to their stressful encounters and daily life experiences. A laboratory stress task assessed EAC's relation to cognitive and affective factors in the context of a specific stressor, whereas EMA in daily life assessed EAC's relation to naturally occurring day-to-day cognitions and affective states. The findings present preliminary evidence that individuals who are higher on dispositional EAC have more adaptive cognitions and affect. Specifically, EAC may lead individuals to engage in more positive cognitions and affect labeling that not only mitigates the psychological and emotional impacts of stressors, but also provides a general state of feeling in control and positive affect in daily life. Further, EAC appears to function largely independent of intra- and interindividual characteristics such as sex, neuroticism, and social support.

EAC, stress, and daily life

Cognitions—Results from the laboratory stressor demonstrated that actively processing and expressing emotions may serve a protective function that reduces one's negative cognitive appraisals of a stressor, boosts one's perceived ability to manage or overcome it, and increases one's positive affective response to it. The adaptive pre- and poststressor cognitions found in this study are consistent with Stanton and Low's (2012a) theoretical model as well as prior research that shows less-negative stressor appraisals among individuals who use emotion-focused coping (Master et al., 2009; Stanton, Kirk, et al., 2000, Study 4).

These findings provide two novel contributions to understanding EAC's utility. First, prior to the stressor, EAC explained almost twice as much of the variance in personal resources as in cognitive appraisal. Thus, the tendency to express and process one's emotions may be most helpful in that it provides individuals with a heightened sense of their own ability to deal with an upcoming stressor. Second, the effects between EAC and adaptive cognitions, in particular perceived personal resources, appear to be stronger prior to versus after a stressor. This suggests that this coping disposition may exert its benefits by facilitating constructive thought processes in anticipation of a stressor.

Daily life findings generally corroborate the laboratory results; individuals with a proclivity to process and express their emotions reported more personal resources (i.e., sense of

control) in their day-to-day experiences. Perhaps individuals who use more EAC report more perceived control because engaging in emotional expression and processing facilitates cognitive integration of events (e.g., Lepore, 2001). As a result, this integration process may heighten their understanding of their experiences, which has the potential to increase feelings of control over oneself and one's environment (Wallston, Strudler-Wallston, Smith, & Dobbins, 1987).

Affect—EAC was related to both more positive affect and less negative affect after the laboratory stressor, which is consistent with previous theoretical (Stanton & Low, 2012a) and empirical (e.g., Berghuis & Stanton, 2002) work. Controlling for baseline affect and intra- and interindividual characteristics did not alter these results, demonstrating that the observed associations are not carryover effects from participants' general affect or other personal characteristics. Interestingly, there was a strong, consistent relationship between EAC and positive affect, particularly when compared to negative affect. For example, EAC accounted for only a small amount of the variance in negative affect in comparison to participants' sex, personality, and social support, and EAC accounted for five times as much of the variance in positive affect as in negative affect. Similarly, in daily life, EAC was not significantly associated with negative affect, but showed a robust relationship with positive affect. Perhaps an increased understanding of one's emotions may help individuals process their emotions more readily, allowing them to feel positively even shortly after a stressor or throughout their day. It may also be that individuals with an increased awareness or understanding of their emotions are able to express them in such a way that is better received by others, resulting in a more positive mood on a daily basis. As positive affect is an important predictor of psychological and physical health (Pressman & Cohen, 2005), it could be a potential mediator of the EAC-adjustment link.

The strong relationship between EAC and positive affect in both study components may raise the question of whether there is an overlap in these constructs. That is, is dispositional EAC so weakly linked to negative affect and so strongly linked with positive affect because its items are measuring a general sense of positivity? We would argue that this is not the case for two reasons. First, although the association between EAC and positive affect is strong in both the laboratory and daily life component, we would expect the Model R^2 s to be much larger across the measures of positive affect if EAC was simply a "positivity construct." Second, the items on the EAC measure ask about expressing and processing emotions in general, not just positive emotions (Stanton, Danoff-Burg, et al., 2000). It may be that people who are more likely to express and process their emotions tend to have more positive emotions; however, EAC was not significantly correlated with either positive affect or negative affect at the prestressor baseline time point. Moreover, controlling for this prestressor baseline affect did not change the associations between EAC and affect in the laboratory or daily life component, suggesting that this measure is distinct from a tendency to simply experience more positive or less negative emotion.

Summary—Together, the two methodologies provide important converging insight on the associations between EAC and cognition and affect. EAC is associated with personal resources (e.g., perceived control) and positive affect in both study components. Since both

of these factors are shown to be important predictors of psychological and physical health (Osowiecki & Compas, 1998; Pressman & Cohen, 2005), they may indeed be stable underlying intermediates through which EAC confers its benefits. One difference in the findings between the study components is that EAC was not significantly associated with perceived stress and negative affect in daily life (but was associated in the laboratory context). These findings suggest that EAC may simply not have as strong of a relationship with perceived stress and negative affect in day-to-day circumstances as it does during stressful events. Across the laboratory and daily life contexts, the observed results remained significant while controlling for sex, neuroticism, and social support; therefore, EAC's utility appears to function relatively independent of these personal characteristics. As cognitive factors and affect have been linked with resilience in stressful contexts and life in general (Frederickson & Losada, 2005), their connection to EAC may foster resiliency, protecting against potential stressors and leading to more adaptive responses in daily life. Importantly, we do not mean to suggest that EAC is merely a composition of adaptive traits. Rather, engaging in emotional expression and processing may lead one to engage in more positive cognitions and affect labeling that, in turn, lead to the benefits typically found among individuals who use this coping strategy.

Sex differences

Consistent with prior research (Berghuis & Stanton, 2002; Stanton et al., 1994, Study 2), findings show that EAC benefits both men and women in the context of a stressor. Our data are the first to show that men with high EAC benefit via *higher positive affect*, whereas women with high EAC benefit via *lower negative affect*. These results suggest that EAC benefits men and women in different ways (through negative versus positive affect). Moreover, the association between EAC and positive affect was particularly robust among men. Altogether, these findings support the need to include the positive and negative valence of emotions in understanding EAC's utility for men and women.

Moderation effects by participants' sex were not replicated across the two contexts: there were EAC \times sex interactions for the stressor, but not in daily life. The lack of moderation by participants' sex in daily life suggests that EAC does not predispose men and women for differential cognitions or affect in their daily experiences. Other studies that have found sex differences (e.g., Beals et al., 2009; Berghuis & Stanton, 2002) have often examined EAC in relation to specific stressors in daily life (e.g., disclosing one's sexual orientation), rather than participants' general states. Future studies of EAC should further examine how women and men engage in different cognitive and affective processes during stressful events and in daily life.

Strengths and limitations

One strength of the study is the use of a multimethod approach (laboratory speech task and EMA in daily life). This enabled us to compare cognitions and affective states within the same individuals across two contexts. Moreover, EAC was not differentially related to baseline assessments of positive affect, but EMA methods demonstrated a link between EAC and more positive affect in daily life. Such subtle differences between macrolevel survey measurements versus microlevel EMA measurements provide reason to utilize

multiple methods in examining correlates of different coping styles. Additionally, many previous studies have examined EAC in individuals with health conditions or diseases (e.g., breast cancer) or dealing with major life stressors (e.g., infertility). Examining EAC among healthy individuals reduces the confounding effects of disease states or elevated distress levels that may be present in such populations.

There are a few limitations to our study. The direction of influence between EAC and the examined cognitive and affective factors is unclear. Rather than EAC facilitating positive cognitive and affective states, it may be that greater control and positive affect encourage individuals to process and express their emotions more. Future experimental research could tease apart the directionality of this relationship. Also, participants' momentary use of EAC was not assessed during either study component as the focus of this study was on dispositional coping; our data are not able to test the temporal sequence of EAC and adaptive cognitions and affect. Future studies could assess the cognitions and affective states immediately preceding and following specific instances when individuals engage in EAC. This type of design could provide further insight on how momentary EAC, cognitions, and affect labeling lead to resiliency and beneficial outcomes. The study sample also requires careful consideration. First, the sample was relatively small, and a larger number of participants would have allowed for greater power across analyses in both the laboratory and daily life context. Second, the majority of undergraduate students who participated were women of Asian descent, the findings of which may not be widely generalizable. Although the largely homogenous makeup of our study sample may not provide ample power to adequately test ethnic differences, prior work suggests that there are no differences in coping approaches among Asian-American college students and other ethnicities (Phinney & Haas, 2003). While this study was relatively small and results should be viewed as preliminary, future studies may build upon these findings to further understand of EAC's utility in larger samples of healthy adults and patient populations. Notably, our findings are not meant to inform clinical interventions per se. A number of randomized controlled trials have shown benefits in individuals assigned to use emotion-focused coping (Classen et al., 2001); yet, it is important to reiterate that these benefits vary across people (Marques et al., 2009), and that individual differences play an important role in the utility of any coping strategy. The outcomes in our study should be interpreted in light of prior evidence that they could be specific to individuals who naturally default to this coping style and may not necessarily translate to individuals who do not have a natural tendency to use EAC. Coping is a multifaceted process that requires in-depth examination across disparate situations and individuals, and clinical interventions designed to influence coping require sensitivity to this complexity.

Conclusion

Previous studies have demonstrated the benefits of active engagement in processing and expressing emotions. Our findings provide preliminary evidence that cognition and affect may serve as potential intermediaries through which EAC confers adjustment. A next step is to test these putative mediators as well as others (e.g., physiological markers; Master et al., 2009) in the context of uncontrolled acute and chronic stressors in real life. The value of

future investigations lies in their ability to examine these putative mediators within a mechanistic model linking EAC to better adjustment in different contexts.

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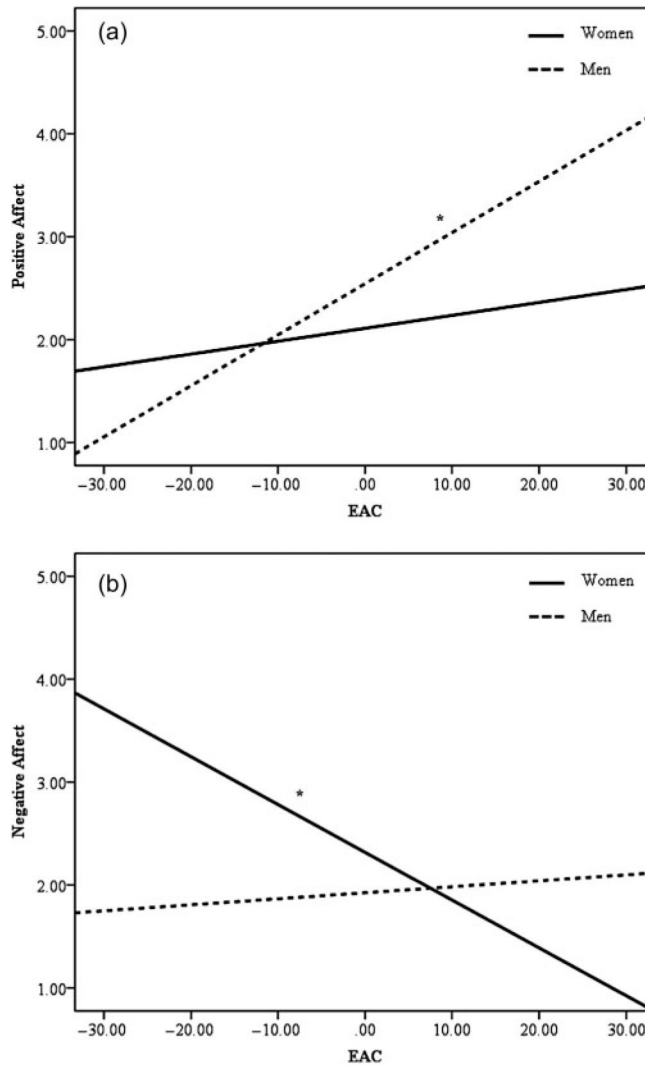


Figure 1. Sex of the participant moderated the association between centered emotional approach coping (EAC) and poststressor positive affect (a) and poststressor negative affect (b) for the laboratory component. *Indicates significant simple slope ($p < .05$).

Table 1

Descriptives for baseline measures, laboratory stressor, and daily life outcomes.

		<i>n</i>	Range	<i>M</i> (<i>SD</i>)
Baseline	EAC	124	21–64	42.31 (9.67)
	Positive affect	120	1.30–4.50	2.64 (0.75)
	Negative affect	120	1–2.40	1.31 (0.30)
	Depression	122	4–38	13.78 (7.07)
	Anxiety	122	21–69	41.99 (10.27)
	Neuroticism	122	10–38	22.16 (6.37)
	Social support	121	27–48	39.85 (5.37)
Prestressor	Cognitive appraisal	124	1–6	3.57 (1.42)
	Personal resources	124	1–6	3.50 (1.06)
Poststressor	Cognitive appraisal	120	1–7	3.91 (1.49)
	Personal resources	121	1–7	3.61 (1.47)
	Positive affect	121	1–5	2.27 (0.81)
	Negative affect	121	1–4.83	2.07 (0.90)
Daily life	Perceived stress	117	0–20	42.14 (9.68)
	Sense of control	117	0–20	5.46 (4.40)
	Positive affect	117	1–4.55	9.11 (4.51)
	Negative affect	117	1–3.74	2.64 (0.74)

Table 2

Multiple regressions for prestressor outcomes on EAC, sex, neuroticism, and baseline social support.

Step	Cognitive appraisal ^a			Personal resources ^a		
	R ²	b (SE)	β	R ²	b (SE)	β
1	.201***	-.464 (.236) ⁺	-.164	.162***	.668 (.175)***	.320
Neuroticism		.093 (.020)***	.424		-.041 (.015)**	-.250
Social support		-.005 (.024)	-.019		.017 (.018)	.087
2	.042*	-.033 (.012)**	-.228	.080***	.032 (.009)***	.303
Constant (SE)		1.900 (1.281)			2.089 (.975)**	
Total adjusted R ²	.246**			.242***		
Final model F (df)	10.727 (4119)***			10.489 (4119)***		

Notes: n = 117. EAC = emotional approach coping. Beta coefficients shown are estimates from the final model. R² reflects the change in adjusted R² for each step.

⁺ p < .10;

* p < .05;

** p < .01;

*** p < .001.

Table 3

Multiple regressions for poststressor outcomes on EAC, sex, personality, and baseline social support.

Poststressor outcomes						
Step	Cognitive appraisal ^a			Personal resources ^d		
	R ²	b (SE)	β	R ²	b (SE)	β
1	.188***	-.337 (.260)	-.112	.120**	.743 (.243)**	.253
		.107 (.022)***	.460		-.065 (.022)**	-.284
		.016 (.028)	.056		.002 (.028)	.006
2	.035*	-.032 (.013)*	-.210	.043*	.034 (.013)*	.230
		2.406 (1.483)*			.893 (1.419)	
Total adjusted R ²	.225*			.163*		
Final model F (df)	(4116) 9.320***			(4116) 6.632***		
Poststressor outcomes						
Step	Positive affect ^b			Negative affect ^b		
	R ²	b (SE)	β	R ²	b (SE)	β
1	.049**	.546 (.141)***	.333	.209***	-.265 (.156) ⁺	-.146
		-.006 (.012)	-.043		.054 (.014)***	.372
		.002 (.015)	.010		.005 (.017)	.028
2	.125**	.030 (.007)***	.355	.025*	-.018 (.008)*	-.189
		-.083 (.841)			.590 (1.012)	
Total adjusted R ²	.174***			.234**		
Final model F (df)	(5112) 9.206***			(5112) 9.692***		

Notes: EAC = emotional approach coping. Beta coefficients shown are estimates from the final model. R² reflects the change in adjusted R² for each step. Differences in sample size are due to missing data.

^a n = 117.

^b n = 113.

⁺ p < .10;

.100' < *p*

;10' < *p*
**
'50' < *p*
*

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Table 4
Generalized estimating equations for daily life outcomes on EAC, sex, personality, and daily social support.

Step	Perceived stress		Sense of control		Positive affect		Negative affect	
	<i>b</i> (SE)	β	<i>b</i> (SE)	β	<i>b</i> (SE)	β	<i>b</i> (SE)	β
1								
Sex	-.062 (.143)	-.032	.323 (.155)*	.167	.149 (.112)	.113	-.006 (.066)	-.007
Neuroticism	.048 (.011)***	.319	-.025 (.012)*	-.166	-.022 (.008)**	-.214	.017 (.005)**	.249
Social support	-.066 (.020)**	-.129	.054 (.017)**	.105	.016 (.009) ⁺	.046	-.034 (.009)***	-.146
2								
EAC	-.006 (.007)	-.061	.024 (.008)**	.243	.020 (.006)***	.298	-.002 (.003)	-.045
Constant (SE)	.947 (.356)**		1.924 (.356)***		2.366 (.238)***		1.409 (.163)***	
Wald $\chi^2(4)$	37.48***		31.29***		26.80***		30.77***	

Notes: *n* = 97. EAC = emotional approach coping. Beta coefficients shown are estimates from the final model.

⁺ *p* < .10;

* *p* < .05;

** *p* < .01;

*** *p* < .001.