A Comparison of Emotional Approach Coping (EAC) between Individuals with Anxiety Disorders and Nonanxious Controls

Luana Marques,¹ Rebecca E. Kaufman,¹ Richard T. LeBeau,¹ Samantha J. Moshier,¹ Michael W. Otto,² Mark H. Pollack¹ & Naomi M. Simon¹

¹ Massachusetts General Hospital, Harvard Medical School, Boston, MA, USA

² Boston University, Boston, MA, USA

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Correspondence

Luana Marques, Ph.D., Center for Anxiety and Traumatic Stress Disorders, Massachusetts General Hospital, Simches Research Building, 2nd Floor, 185 Cambridge Street, Boston, MA 02114, USA.

Tel.: (617)-726-0776;

Fax: (617)-643-3080;

E-mail: lmarques@partners.org

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Emotional regulation deficits are described as a core component of anxiety disorders (ADs), yet there remains a paucity of data examining this issue in patients diagnosed with ADs. We hypothesized that help-seeking individuals with ADs would report lower levels of emotional approach coping (EAC), which includes emotional processing (EP) and emotional expression (EE), than nonanxious controls. Diagnostic interviews and a validated self-report scale assessing emotional approaches to coping (emotional approach coping scale [EACS]) were administered to 101 nonanxious controls and 92 patients with a primary AD (29 generalized anxiety disorder, 40 social anxiety disorder, and 23 panic disorder). Patients with each AD demonstrated significantly lower EAC, including both EP and EE, than nonanxious controls. Lower EAC was also associated with higher anxiety sensitivity and higher anxiety symptom severity. Overall, gender did not moderate the anxiety–EAC effect, but the results suggested that women utilize EAC to a greater degree than men. Clinical techniques designed to improve emotional coping may be beneficial to individuals with ADs.

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Introduction

There is a paucity of data comparing emotional regulation deficits across the anxiety disorders (ADs) or examining what features of ADs may be linked to emotional processing (EP) and emotional expression (EE). However, if one considers the broader coping literature as a proxy to the specific construct of emotional regulation, there is a plethora of research documenting that individuals suffering from a variety of ADs are likely to engage in dysfunctional coping strategies [1–5], consistent with not only the avoidant behaviors characterizing these disorders but also the broader hypothesis that individuals with ADs suffer from deficits in emotional regulation. This study was designed to examine a particular domain of emotional regulation, emotional approach coping (EAC), among individuals diagnosed with one of three primary ADs (generalized anxiety disorder [GAD], panic disorder [PD] without agoraphobia, and social anxiety disorder

[SAD], generalized type) compared with nonanxious healthy controls.

EAC is defined as one's ability to acknowledge, experience, and process emotions [6]. It may be considered an opposite construct to emotional avoidance, a deleterious coping strategy often used by individuals suffering from ADs [5,7–10]. EAC as a construct was postulated by Stanton and colleagues, drawing upon emotional processing models [11] and theoretical data [6,12,13] supporting the benefit of processing and expressing emotions. Specifically, individuals who are better able to engage in EAC are more likely to report greater psychological well-being [3,14]. To measure EAC, Stanton and colleagues designed the emotional approach coping scale (EACS) [12]. The EACS is composed of two empirically driven subscales: emotional processing (EACS-EP), which was designed to measure the validation of and active attempts to acknowledge and understand emotions, and emotional expression (EACS-EE), which was designed to

assess the level of engagement in and comfort with the expression of emotions [12].

GAD, SAD, and PD are each characterized by excessive fear or worry, with variable levels of phobic avoidance, and each has been associated with the difficulty in engaging in adaptive coping strategies [2,5,7]. Each disorder, nonetheless, has distinct symptom profiles. GAD is characterized by a persistent, chronic, and excessive worry that is associated with a syndrome of related emotional and physiological symptoms such as insomnia, irritability, poor concentration, and muscle tension [15]. Individuals with SAD suffer from a persistent fear of being negatively evaluated, judged, or humiliated in social and performance situations, which results in significant distress and/or situational avoidance [15]. PD is characterized by recurrent panic attacks and anticipatory anxiety, with or without agoraphobic avoidance of situations and sensations that may trigger a panic attack [15]. It remains unclear, however, whether EAC varies across these disorders or, as we hypothesize, whether it may be present across ADs and potentially linked to core features of anxiety such as anxiety sensitivity.

No studies have examined EAC in a diagnosed sample of patients with ADs. One study of a nonclinical sample of individuals with uncued panic attacks and depressive symptoms found that higher depressive symptoms were associated with lower EAC, as measured by the EACS, as well as with greater anxiety sensitivity, more panic attacks, and more severe panic symptoms [16]. Furthermore, there is evidence to suggest that patients with ADs engage in maladaptive coping styles in general. For example, individuals with PD appear to utilize several negative coping styles such as escape, distractions, and avoidance of fearful situations [2,4,5]. Similarly, a growing body of work suggests that emotional dysregulation may be a core feature underlying GAD [10,17]. Prior research comparing individuals with GAD and SAD with healthy controls also found a nondisorder-specific overall decrease in adaptive emotional regulation strategies [9]. Such data lend support to the hypothesis that emotional dysregulation might be a higher-order construct present across ADs.

The purpose of this study was to examine the degree to which individuals with an AD (i.e., GAD, SAD, or PD) engage in EAC compared with nonanxious controls. We hypothesized that the presence of an AD would be associated with lower levels of EAC, as measured by the EACS, when compared with healthy controls, and that EACS total scores (EACS-T) and subscales (EE and EP) would be lower across the ADs compared with a nonanxious control group. Additionally, we hypothesized that higher levels of anxiety sensitivity (as measured by the Anxiety Sensitivity Index [ASI] [18]) and general anxiety

symptoms (as measured by the Beck Anxiety Inventory [BAI] [19]) would each be associated with lower EAC. Finally, because of prior inconsistent findings regarding the differences in gender and EAC in the literature [6,12,14,20,21], we explored whether gender might moderate an anxiety effect.

Methods

Participants

The sample included 92 patients with ADs who had consented to participate in a questionnaire-based protocol ancillary to a pharmacotherapy, psychotherapy, or combined treatment protocol at the Center for Anxiety and Traumatic Stress Disorders at Massachusetts General Hospital. In addition, 101 nonanxious healthy controls who were free of DSM-IV axis I psychiatric diagnoses were recruited as a comparative sample for the assessment protocol. The patients were recruited through advertisement and clinical referral. All participants received a structured clinical interview for DSM-IV diagnoses with the Structured Clinical Interview for DSM-IV (SCID) [22] or the Mini-International Neuropsychiatric Interview (MINI) [23] to determine the presence of a primary AD (GAD, SAD, or PD with or without agoraphobia) as well as comorbid disorders and establish the lack of DSM-IV diagnoses for healthy controls. Individuals presenting with substance abuse or dependence within the past 6 months, mental disorder due to a medical condition or substance, psychotic symptoms, or acute suicidal ideation were excluded. The institutional review board at the Massachusetts General Hospital reviewed all procedures, and all participants signed informed consent prior to diagnostic assessment and the completion of study-related self-report assessments.

Measures

The EACS [12] is an 8-question, patient-rated, self-report scale designed to measure emotional coping. Participants are asked to rate their usual response to stress by rating each item on a 4-point Likert scale (1 = "I usually don't do this at all" to 4 = "I usually do this a lot"). The scores for the EACS-T range from 0 to 32, with lower scores representing poorer emotional coping. The EACS also has two empirically validated subscales: EP and EE, each composed of four items [12]. The EP scale is designed to measure active attempts to acknowledge and understand emotions and includes items such as "I take time to figure out what I'm really feeling," "I delve into my feelings to get a thorough understanding of them," and "I realize that my feelings are valid and important"

[12]. The EE scale is designed to assess outward emotional expression, with items including "I take time to express my emotions," "I let my feelings come out freely," and "I allow myself to express my emotions" [12]. Total scores for each of the subscales range from 4 to 16, with lower scores representing poorer emotional coping. The EACS-T, EACS-EP, and EACS-EE have demonstrated high internal consistency ($\alpha = 0.91$ for each) and test-retest reliability ($r = 0.78, 0.74, 0.76$, respectively [12]).

The BAI [19] is a 21-item, self-report inventory designed to measure the severity of anxiety symptoms, including nervousness, fear, and somatic symptoms, in psychiatric populations with high internal consistency ($\alpha = 0.92$) and test-retest reliability ($r = 0.75$ [19]).

The Reiss-Epstein-Gursky ASI, [18] is a 16-item, self-report instrument using 5-point Likert scale (0 = very little to 4 = very much) designed to assess the fear of anxiety and somatic sensations. Total scores on the ASI range from 0 to 64, with higher scores indicating more severe anxiety sensitivity [24]. A high ASI score has been shown to be a risk factor for panic attacks [25,26]. The ASI has high internal consistency ($\alpha = 0.88$ [27]) and test-retest reliability ($\kappa = 0.71$ [18]).

Analytical Strategy

The EACS distribution was screened for nonnormality using the guidelines set by Kline 2005. The EACS-T score for skewness was less than 3, and kurtosis was less than 10 for both nonanxious controls and patients. These results suggest that nonnormality of the data was not a concern [28]. After confirming normality of the EACS data, we performed separate regression analyses using STATA (Stata Statistical Software: Release 9, Stata Corp., College Station, TX, USA) examining the associations of the presence of at least one AD, of anxiety sensitivity (ASI), and of general anxiety symptoms (BAI) predicting EACS-T, adjusting for age and gender as covariates. We similarly examined the EACS subscales (i.e., EACS-EE and EACS-EP), limiting the analyses to the binary AD comparison to limit the number of tests. After stratifying the sample by specific disorders (PD, GAD, and SAD), we ran follow-up analyses examining whether lower scores on the EACS were associated with a specific AD. To explore whether the presence of an additional current anxiety or depression diagnosis impacted EAC beyond the primary AD effect, with the stratified AD samples, we then performed *t*-tests examining the presence or absence of comorbidity. Cohen's *d* effect sizes (*d*) are provided as an additional measure of the magnitude of the effects. Finally, to explore potential gender differences in an AD effect on EAC, we also examined a regression model including an interaction term for gender and AD.

Results

Sample

The AD sample included 92 individuals, including 40 with a primary diagnosis of SAD ($n = 17$ women), 29 with a primary diagnosis of GAD ($n = 14$ women), and 23 with a primary diagnosis of PD with or without agoraphobia ($n = 8$ women). The healthy control sample included 101 individuals with no DSM-IV diagnoses. Sample demographics are presented in Table 1. Potential differences in demographic characteristics of the AD and control samples were examined with independent *t*-tests. The control group was significantly younger ($M = 29$ years, $SD = 10$) than the AD group ($M = 40$ years, $SD = 13$, $t(191) = 2.87$, $P < 0.01$). Although age was not significantly correlated with the EACS score ($r = -0.11$, $P > 0.1$), to adjust for potential residual confounding, we chose to include both age and gender as covariates in subsequent analyses because of prior literature implicating potential gender differences in EAC, although there were no differences in gender in the sample.

Emotional Approach Coping

As hypothesized, patients with an AD had a significantly lower age- and gender-adjusted total score on the EACS compared with nonanxious controls (see Table 2). The follow-up stratified analyses indicated that participants with primary GAD, PD, or SAD each showed significantly lower levels of EAC than control participants (see Table 2). Thus, consistent with our hypothesis, we did not find evidence supporting a unique effect of one

Table 1 Demographics

Subject characteristics	Patients ($n = 92$)	Controls ($n = 101$)
Age (years), mean (SD)	40.4 (13.4)	29.2 (10.1)
Gender, % female (n)	42.4 (39)	48.5 (49)
Race, % Caucasian (n)	85.9 (79)	86.1 (87)
Duration of illness (years), mean (SD)	19 (15.9)	—
Current comorbidity, % (n)		
At least one comorbid disorder	41.3 (38)	—
SAD	5.4 (5)	—
GAD	14.1 (13)	—
Panic	4.4 (4)	—
MDD	17.4 (16)	—
Dysthymia	17.4 (16)	—
Phobia	5.4 (5)	—
OCD	1.1 (1)	—
BDD	1.1 (1)	—

BDD, body dysmorphic disorder; MDD, major depressive disorder; OCD, obsessive compulsive disorder.

Table 2 Impact of anxiety on emotional approach coping (EACS), emotional expression (EACS-EE), and emotional processing (EACS-EP), adjusted for age and gender

Dependent variable	Predictor	M	SD	β	SE	<i>P</i>	<i>d</i>
EACS: $R^2 = 0.09$, $F(3,189) = 7.43$, $P = 0.0001^a$	Control	21.4	5.36	—	—	—	—
	Anxiety	18.1	5.64	−3.50	0.87	0.0001	0.61
EACS: Specific anxiety disorder subtype analyses	GAD	18.6	16.2	−2.81	1.44	0.053	0.49
	Panic	16.9	5.08	−4.20	1.30	0.002	0.86
	SAD	18.4	5.58	−2.93	1.04	0.006	0.56
EACS-EE: $R^2 = 0.13$, $F(3,189) = 10.97$, $P < 0.0001$	Control	10.6	2.92	—	—	—	—
	Anxiety	8.41	3.23	−2.44	0.48	0.0001	0.71
EACS-EP: $R^2 = 0.02$, $F(3,189) = 2.52$, $P = 0.059$	Control	10.8	3.21	—	—	—	—
	Anxiety	9.64	3.23	−1.03	0.51	0.046	0.36

^aOverall regression data for full anxiety disorder sample compared with controls, adjusted for age and gender. R^2 , adjusted R^2 for overall regression; *d*, Cohen's *d* effect size derived from unadjusted means (*M*) and standard deviations (*SD*).

specific AD on EACS-T score; however, the GAD effect was small and not statistically significant. Consistent with this, the Cohen's *d* unadjusted effect size differences for individual disorders were *d* = 0.86 (large) for panic, *d* = 0.56 for SAD (medium), and *d* = 0.49 for GAD (small to medium). In the follow-up analyses, the impact of comorbid mood or anxiety diagnosis on the EACS was examined with independent sample *t*-tests within the AD group and for individual ADs. Individuals with at least one comorbid mood or AD (*M* = 17.4, *SD* = 6.12) did not score differently on the EACS than those without comorbidity (*M* = 18.5, *SD* = 5.28, $P = 0.37$, Cohen's *d* = 0.18, or very small). Similarly, there were no comorbidity effects within the GAD group ($P = 0.43$, *d* = 0.31, small), PD group ($P = 0.82$, *d* = 0.10, small), or SAD group ($P = 0.99$, *d* = 0.004, very small).

Anxiety Sensitivity, Anxiety Symptoms, and EAC

Similar to findings for overall anxiety diagnosis, the severity of anxiety symptoms, as measured by higher scores on the BAI, as well as the level of anxiety sensitivity, as measured by higher scores on the ASI, were each associated with significantly poorer EAC (BAI: $F(3,187) = 7.60$, $P = 0.0001$; ASI: $F(3,189) = 5.43$, $P = 0.0013$).

EE and EP Subscales

Individuals with an AD scored significantly lower on the EACS-EE subscale compared with nonanxious controls (see Table 2), reflecting a medium effect size (*d* = 0.71). Individuals with an AD also scored significantly lower on the EACS-EP than nonanxious controls (Table 2) after adjustment for age and gender. However, this difference was less robust than the difference in EE and reflected a small effect size (*d* = 0.36).

EAC: The Role of Gender

After controlling for age, there was not a significant AD by gender interaction for the EACS-total score ($P < 0.23$, overall model $F(4,188) = 5.95$, $P = 0.0002$). However, there was a main effect noted for gender ($P < 0.03$) such that men (*M* = 19.0, *SD* = 5.89) scored significantly lower in overall EAC than women (*M* = 20.8, *SD* = 5.42).

Discussion

Consistent with our hypotheses, we found that the presence of an AD was associated with lower self-reported use of EAC when compared with nonanxious controls, including the subtypes of EP and, perhaps to a greater degree, EE. The follow-up stratified analyses suggest that of the individual anxiety diagnoses, PD and SAD were each associated with lower levels of EAC. A similar trend, reflecting a much weaker effect size, was evident for GAD.

These results are consistent with prior data that have demonstrated emotional dysregulation in patients with GAD and SAD compared with controls, including different measures of heightened emotional intensity, deficits in understanding their emotions, and discomfort with emotions [9]. Similarly, there is compelling evidence suggesting that individuals with GAD have difficulties with emotional regulation, implicating worry as a core feature of this deficit [10,17,29]. Our study also expands on these data by demonstrating that reduced EAC is also associated with PD. We also have evidence that reduced EAC may have both general and specific components. We found that it was linked to the measures of general anxiety, but was also linked to anxiety sensitivity, a variable that is most associated with PD and posttraumatic stress disorder [1], as evidenced by the approximate doubling in the effect size for the EAC in patients with PD versus GAD.

relative to the control subjects. Our PD findings are consistent with prior reports of dysfunctional coping styles such as increased avoidance and reduced use of problem-solving coping in PD [2]. Thus, emotional regulation deficits may be linked to higher-order anxiety symptom constructs present in varying degrees across fear- and worry-based ADs.

The EAC involves one's ability to actively acknowledge, explore, process, and communicate emotions in a verbal or nonverbal manner [30]. A central assumption of EAC is that individuals are able to accept their emotional state and conceptualize it to be appropriate for expression (e.g., nonaversive). Given that individuals with ADs are hypothesized to interpret emotions as aversive [31], it is not surprising that these individuals would have difficulties in engaging in EAC. Our findings correlating poorer EAC with greater anxiety sensitivity, a construct increasingly conceptualized in relation to emotional intolerance [32], is consistent with this hypothesis. However, it is not clear whether this ability is a cause or consequence of having an AD, a hypothesis that warrants further exploration.

There are several studies documenting the positive association between one's ability to engage in EAC and a number of adaptive health outcomes (for a review [30,33]). It is important to note, however, that past research has questioned the long-term benefits of EP coping [12,34], suggesting, for example, that EP without expression may result in rumination and increased distress over time [30,34]. Thus, future research examining the association between EP and ADs, as well as between worry, rumination, and avoidance, prospectively would be useful to better understand the role of EP among individuals with ADs.

Finally, the literature also suggests that gender might function as a moderator of the association between an individual's ability to engage in EAC and beneficial health outcomes. However, it is important to highlight that these findings are inconsistent, with variable results for men and women across studies [6,12,14,20]. For example, Schut et al. [21] showed that bereaved men but not women appeared to cope better with EAC than with problem-focused coping, as shown through the improvement on the General Health Questionnaire, while another study found less depression and more life satisfaction associated with EAC for women, but the opposite pattern was found in men [6]. Thus, it appears that men and women may, in general, utilize different strategies for successful coping, though whether this is the case for individuals with ADs remains unclear. In the current study, we found that women utilize EAC to a greater degree than men overall, but that gender did not moderate the anxiety–EAC effect. Furthermore, because of power limitations and in order to reduce multiple testing, we did

not examine whether gender moderates the association between the subtypes of EAC and anxiety, and this also remains unclear for other outcomes.

Limitations and Future Directions

These results should be considered in light of the following limitations. First, the use of cross-sectional data prevents inference about causality. Future longitudinal studies could examine the relationship between EAC and ADs, examining change over time and change with treatment. Longitudinal data would be of interest, in part, because variation in life events and associated stress at the time of completing the questionnaire might impact responses. Ideally, future studies would include samples at risk for ADs followed up over time to help delineate whether poor EAC functions as a risk factor for the development of ADs or instead whether poorer emotional coping develops as a secondary consequence of the onset of an AD. Although not directly able to address this question, in *post-hoc* analyses, we did not find evidence for a significant correlation of emotional coping with the age of onset or duration of illness of the primary AD (all $P > 0.10$). Future studies would also benefit from the inclusion of additional questionnaires examining fluctuations in stressors and in emotional state at the time of completion of the EAC. To better elucidate the specific features of ADs and their association with emotional coping, future studies would also benefit from the use of AD-specific questionnaires. Our data are limited by the use of the BAI and ASI as proxy measures for overall anxiety symptom severity across disorders. Furthermore, future studies should consider other variables that might be associated with lower levels of EAC such as functional impairment, disability, or cultural factors. It is also possible that men and women might differ in their use of adaptive coping strategies such as EAC based on the nature of the stressor.

In addition, while we found a similar deficit in EAC across AD diagnosis, our other limited assessments did not allow us to determine whether different mechanisms might be at play across the ADs. For example, given that individuals with PD often engage in suppression [2,4,5], while individuals with GAD are more likely to engage in worrying to avoid emotional expression [35], these variables would be of interest in future studies of EAC and anxiety.

Conclusions

Although emotional dysregulation has been conceptualized as a central component of ADs, there are limited

data in clinical sample of individuals diagnosed with these disorders. The current study demonstrated reduced use of EAC strategies across three distinct ADs and correlated them with general anxiety symptom severity and anxiety sensitivity. Our findings are unique to the extent that they expand on the health-related literature by demonstrating that patients with ADs seem to present with similar deficits in EAC. Future research is needed to determine whether this deficit is associated with other higher-order anxiety constructs such as avoidance and worry. The presence of deficits in EAC supports that treatment protocols integrating specific interventions to address emotional dysregulation among patients suffering with ADs may be helpful, and clinical research in this area is indicated.

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Conflict of Interest

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