HHS Public Access

Author manuscript

J Clin Psychiatry. Author manuscript; available in PMC 2015 October 14.

Published in final edited form as:

J Clin Psychiatry. 2011 May ; 72(5): 685–691. doi:10.4088/JCP.10m06409blu.

Emotion Dysregulation and Negative Affect: Association With Psychiatric Symptoms

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Abstract

Objective—A growing body of research focuses on the development and correlates of emotion dysregulation, or deficits in the ability to regulate intense and shifting emotional states. Current models of psychopathology have incorporated the construct of emotion dysregulation, suggesting its unique and interactive contributions, along with childhood disruptive experiences and negative affect, in producing symptomatic distress. Some researchers have suggested that emotion dysregulation is simply a variant of high negative affect. The aim of this study was to assess the construct and incremental validity of self-reported emotion dysregulation over and above childhood trauma and negative affect in predicting a range of psychopathology.

Method—Five hundred thirty individuals aged 18 to 77 years (62% female) were recruited from the waiting areas of the general medical and obstetric/gynecologic clinics in an urban public hospital in Atlanta, Georgia. Participants completed a battery of self-report measures obtained by interview, including the Childhood Trauma Questionnaire, the Positive and Negative Affect Schedule, and the Emotion Dysregulation Scale. Regression analyses examined the unique and incremental associations of these self-report measurements of childhood traumatic experiences, negative affect, and emotion dysregulation with concurrent structured interview–based measurements of psychiatric distress and history of self-destructive behaviors. These measures included the Clinician-Administered PTSD Scale, the Alcohol Use Disorders Identification Test, the Short Drug Abuse Screening Test, the Beck Depression Inventory, and the Global Adaptive Functioning Scale from the Longitudinal Interval Follow-Up Evaluation. The presented data were collected between 2005 and 2009.

Results—Regression models including age, gender, childhood trauma, negative affect, and emotion dysregulation were significantly ($P \leq .001$) associated with each of the study's criterion

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Disclosure of off-label usage: The authors have determined that, to the best of their knowledge, no investigational information about pharmaceutical agents that is outside US Food and Drug Administration–approved labeling has been presented in this article.

Financial disclosure: **Drs Bradley, DeFife, Guarnaccia, Ressler**, and **Westen** and **Mss Phifer** and **Fani** have no personal affiliations or financial relationships with any commercial interest to disclose relative to the article.

variables, accounting for large portions of the variance in posttraumatic stress symptoms (R^2 = 0.21), alcohol and drug abuse (R^2 = 0.28 and 0.21, respectively), depression (R^2 = 0.55), adaptive functioning (R^2 = 0.14), and suicide history (omnibus χ^2 = 74.80, P < .001). Emotion dysregulation added statistically significant (P < .01) incremental validity to each regression model (β = 0.25, 0.34, 0.35, 0.34, and −0.18, and Wald = 24.43, respectively).

Conclusions—Results support the conceptualization of emotion dysregulation as a distinct and clinically meaningful construct associated with psychiatric distress that is not reducible to negative affect. Emotion dysregulation is a key component in a range of psychiatric symptoms and disorders and a core target for psychopharmacologic and psychosocial treatment interventions.

A well-established body of literature has identified a trait-like tendency toward negative affect or "neuroticism" as a higher order construct central to multiple Axis I and Axis II disorders.[1,2] In addition, deficits in the ability to regulate intense, negative, and shifting emotional states may be implicated in various forms of adult psychopathology. As such, accumulating of research has focused on the defining properties, developmental trajectory, neurobiological underpinnings, and behavioral manifestations of emotion dysregulation.[3]

Components of emotion dysregulation include a tendency for emotions to spiral out of control, change rapidly, get expressed in intense and unmodified forms, and/or overwhelm both coping capacity and reasoning.[4–8] Developmental research suggests that these self-regulatory deficits emerge from an interaction of intrinsic temperamental and biological factors as well as extrinsic intrusions from chaotic and stressful early life experiences, particularly childhood abuse and problematic attachments with caregivers.[9] This model suggests that children prone to negative affect and/or higher levels of emotional reactivity will be at higher risk for emotion dysregulation when exposed to chaotic, disruptive environments and other adverse childhood events. The strong association between adverse childhood experiences and a wide range of adult mental problems (eg, depression, suicide, substance use) may be, in part, accounted for by vulnerability to poor emotion regulation among children exposed to multiple adverse childhood events.[10–14]

A small but growing number of studies have begun to focus on both negative affect (ie, emotions people tend to feel) and emotion regulation (ie, the ability to adaptively manage emotions, particularly negative emotions). The prevailing focus of research on emotion dysregulation in clinical populations has centered on borderline personality disorder, identifying both negative affect and emotion dysregulation as central to this form of psychopathology.[15–20] Cross-sectional and longitudinal studies[21–25] utilizing various self-report and expert-report measures have found that emotion dysregulation is a highly descriptive, distinctive, temporally stable, and heritable component of borderline personality disorder.[21–25] Even after analyses were controlled for levels of depression, emotional intensity and dysregulation related significantly to a number of borderline personality disorder traits.[26] Similarly, comparisons of patients with dysthymia to those with borderline personality disorder find that dysthymic patients are characterized by negative affect alone, whereas borderline personality disorder patients are characterized by both negative affect and emotion dysregulation.[15,27] Both emotion dysregulation and negative affect are primary targets of a number of treatment approaches for borderline personality disorder.[28–31]

Across Axis II syndromes, neuroticism (defined as a predisposition to negative affective states) demonstrates a distinctive associative pattern with cluster C personality disorders as compared to the affective instability associated with cluster B disorders.[32] In a study of patients receiving treatment for substance dependence, McDermott and colleagues[33] found that emotion regulation difficulties distinguished posttraumatic stress disorder (PTSD) patients from non-PTSD patients above and beyond the level of anxiety symptom severity.

The goal of this study was to examine the relationship of both negative affect and emotion dysregulation with symptoms of multiple Axis I symptoms including depression, PTSD symptoms, alcohol and substance use–related symptoms, and history of suicide attempts, as well as global adaptive functioning. Specifically, we examined the contributions of emotion dysregulation, childhood trauma, and negative affect to a range of clinical psychopathology.

We are focusing on these variables as they present in a population at high risk of vulnerability to psychiatric disorders including depression, PTSD, and substance abuse.[34–36] Understanding the factors underlying risk and resilience to mental disorders in this population is a question that is of high public health importance. Using the self-report Emotion Dysregulation Scale, the Childhood Trauma Questionnaire, and the Positive and Negative Affect Scale, we examined selected a priori criterion variables of clinical interest including measurements of posttraumatic stress, substance abuse history, depressive symptoms, suicide attempt history, and global adaptive functioning.

METHOD

Procedure

Subjects in this study were ascertained as part of the Grady Trauma Project, a 5-year National Institutes of Health–funded study of risk and resilience factors related to PTSD.[34,37,38] Participants were recruited from the general medical and obstetric/gynecologic clinics at a publicly funded, not-for-profit health care system that serves a low-income population in Atlanta, Georgia. Interviewers approached participants waiting for appointments. Participants were read each question by a trained interviewer who recorded their responses onto a tablet computer. Participants completed a battery of self-report measures that took 45–75 minutes to complete (dependent in large part on the extent of the participant's trauma history and symptoms). All measures were obtained by verbal interview. Each person was paid $15.00 for participation in this phase of the study. Eligibility requirements for all phases of the study included the ability to give informed consent, and written and verbal informed consent was obtained for all participants. All procedures in this study were approved by the institutional review boards of Emory University School of Medicine and Grady Memorial Hospital, Atlanta, Georgia. Presented data were collected between 2005 and 2009.

As described in full detail previously,[34] study participants who completed this initial interview were invited to participate in a secondary phase of the study that included a more comprehensive, structured interview–based assessment of psychological functioning.[34,38]

Participants

The sample included 530 study participants (although, as some participants did not complete all measures, the number of participants for individual analyses varies). The participants were predominantly female (62%), with ages ranging from 18 to 77 years (mean = 42.3 years, SD = 12.6 years). Eighty-eight percent of participants were African American, 5% were white, 1% were Latino, and 3% were mixed or other. Twentyfour percent had less than a 12thgrade education, 42% completed a terminal high school diploma or General Educational Development test, 22% had some college or technical school education, and 8% graduated from a college or technical school.

Measures

Childhood Trauma Questionnaire—The Childhood Trauma Questionnaire[39,40] is a 28-item self-report measure of childhood trauma and neglect assessing 5 types of maltreatment: sexual, physical, and emotional abuse and emotional and physical neglect.

Positive and Negative Affect Schedule—The Positive and Negative Affect Schedule[41] is a well-validated brief measure of general mood state. Participants were asked to rate on a 5-point Likert scale their general experiences with 20 emotion adjectives, 10 describing positive emotional states (eg, excited, proud, and inspired) and 10 describing negative emotional states (eg, distressed, jittery, and irritable). Analyses for this study focused on the negative affect portion of the scale only.

Emotion Dysregulation Scale—The Emotion Dysregulation Scale (D.W., B.B., unpublished scale, 2008; available at http://www.psychsystems.net) is a 24-item self-report scale adapted from the clinician-rated Affect Regulation and Experience Q-Sort Questionnaire.[15,27,42,43] Items are scored on a 7-point Likert scale and assess domains of emotional experiencing (eg, “My emotions sometimes spiral out of control,” “Emotions overwhelm me,” “When I feel angry, I get *really* angry”); cognition (eg, “When I’m upset, I have trouble seeing or remembering anything good about myself,” “When I’m feeling bad, I have trouble remembering anything positive; everything just feels bad”); and behavior (eg, “When my emotions are strong, I often make bad decisions,” “When I’m upset, I sometimes become needy or clingy”). The internal consistency of the scale is high ($\alpha = 0.97$).

Clinician-Administered PTSD Scale—The Clinician-Administered PTSD Scale[44] is an interviewer-administered diagnostic instrument measuring PTSD, and it includes items that rate social and occupational functioning, global PTSD symptom severity, and the validity of the participant’s responses. The Clinician-Administered PTSD Scale assesses PTSD diagnosis and yields a continuous measure of the severity of overall PTSD and its 3 symptom clusters (intrusion, avoidance, and arousal). The frequency and intensity scores for each of the 17 diagnostic criteria are summed to arrive at a total severity score. This measure has excellent psychometric properties.[45,46]

Alcohol Use Disorders Identification Test—The Alcohol Use Disorders Identification Test[47] is an interview-based assessment measuring frequency of both alcohol use and related behavioral problems, yielding a total score from 0 to 40.

Short Drug Abuse Screening Test—The Short Drug Abuse Screening Test[48] is a 10-item self-report measurement of nonalcohol substance use and related problems. Multiple studies support the psychometric properties of the Short Drug Abuse Screening Test in the assessment of drug abuse and dependence in a variety of settings and populations.[49–51]

Beck Depression Inventory—The Beck Depression Inventory[52,53] is a widely used, 21-item self-report measurement of depressive symptoms. In addition to the Beck Depression Inventory, participants were also asked to self-report any history of suicide attempts.

Longitudinal Interval Follow-Up Evaluation–Psychosocial Schedule–Global Adaptive Functioning Scale—A portion of the Longitudinal Interval Follow-Up Evaluation[54] interview was used to obtain a broad-based measurement of participants' subjective sense of global adaptive functioning during the prior month. Participants were asked to rate their level of functioning during the prior month on a scale from 1 (very good, no impairment) to 5 (very poor, severe impairment).

RESULTS

To determine the extent of association between our predictor variables (childhood trauma, negative affect, and emotion dysregulation), we calculated Pearson correlation coefficients. Each correlation had a large effect size and was statistically significant. Childhood trauma and negative affect scores correlated at $r_{428} = 0.25$ ($P < .001$), while emotion dysregulation scores were also significantly related to childhood trauma ($r_{429} = 0.26$, $P < .001$) and negative affect ($r_{425} = 0.57$, $P < .001$).

We then conducted a series of linear regressions (for dimensional criterion variables) and a logistic regression (for the categorical criterion of reported suicide history) to examine the unique and combined associations of childhood trauma, negative affect, and emotion dysregulation ratings with variation in our selected criterion measurements of posttraumatic stress, substance abuse problems, depression, suicidality, and adaptive functioning. While the selected predictor variables were significantly correlated, the relationships were far from large enough in effect to create concerns about multicollinearity or variance inflation within a regression model.[55] In each regression, age and gender (coded as male = 0, female = 1) were entered in the first step of the model to control for demographic variations. We then entered childhood trauma and negative affect ratings in the second step and emotion dysregulation in the final step to examine the incremental validity of emotion dysregulation in each predictive model. Table 1 presents results from the third-step overall model of each linear regression, and Table 2 presents results of the logistic regression for suicide history.

Posttraumatic Stress

As seen in Table 1, an overall model including age, gender, childhood trauma, negative affect, and emotion dysregulation was significant ($F_{394} = 21.03$, $P \leq .001$), accounting for 21% of the variance in frequency and intensity of posttraumatic stress symptoms. Each of our selected predictor variables (childhood trauma, negative affect, and emotion dysregulation) was statistically significant, and adding emotional dysregulation in the final

step accounted for a statistically significant incremental 4% ($P \leq .001$) of the overall variance (a unique R change of 0.16).

Substance Abuse

For alcohol use and related behavioral problems, the overall regression model was statistically significant ($F_{123} = 9.29$, $P \leq .001$), accounting for 28% of the variance in alcohol abuse. Age and gender were significantly related to reported alcohol abuse (Table 1), with older participants and male participants more likely to indicate problems stemming from alcohol abuse. Of our 3 target predictor variables, only emotion dysregulation was a significant predictor of alcohol abuse history, accounting for an 8% increment ($P \leq .001$) of the unique variance in the model.

The overall regression model for nonalcohol substance use and related problems was also statistically significant ($F_{103} = 5.06$, $P \leq .001$), accounting for 21% of the reported drug abuse variance. Age was significantly related to drug abuse problems, as were both childhood trauma and emotion dysregulation (Table 1). Again, adding emotion dysregulation to the final step of the regression model resulted in a statistically significant incremental prediction, accounting for an additional 7% of the unique variance ($P < .01$). Negative affect ratings demonstrated an inversely associated trend with drug abuse problems.

Depression and History of Suicide Attempt

The overall model predicting depressive symptoms was significant ($F_{394} = 96.72$, $P \leq .001$) and accounted for 55% of the variance in Beck Depression Inventory scores. Again, each of our hypothesized predictor variables was significantly related to depressive symptoms (Table 1), with emotion dysregulation accounting for an incremental 7% ($P < .01$) of the variance in the final prediction model.

Table 2 presents results from the final block of the logistic regression analysis for history of suicide attempt. The overall model was significant. In block 2 of the model, negative affect was significantly associated with suicide history (Wald statistic = 10.56, $P = .001$); however, this relationship was virtually eliminated when emotion dysregulation was added to the model in block 3. In the final model, female gender, childhood trauma, and emotion dysregulation scores were all significantly associated with suicide history.

Global Adaptive Functioning

As indicated in Table 1, the overall regression model for global adaptive functioning was statistically significant ($F_{386} = 12.12$, $P \leq .001$), although relatively smaller in effect, accounting for 14% of the variance. Gender was significantly related to higher self-reported ratings of global adaptive functioning in the prior month. Childhood trauma was not significantly related to recent adaptive functioning, while negative affect and emotion dysregulation were significantly related to lower adaptive functioning scores. Adding emotion dysregulation in the final step added a smaller but nevertheless significant increment to the model's predictive power, accounting for an additional 2% ($P < .01$) of the unique variance.

DISCUSSION

Our findings indicate that this self-report measure of emotion dysregulation was internally consistent and related, as expected, to a range of psychopathology criterion variables including posttraumatic stress, substance abuse problems, depression, suicide history, and subjective sense of adaptive functioning. Emotion dysregulation added significant incremental validity in relation to a broad range of distressful psychological symptoms and maladaptive behaviors.

The deleterious effects of early-life traumatic experiences appear to ripple through the lifespan as implicated in their relationships with current ratings of negative affect, posttraumatic stress, drug abuse, depression, and suicidality. Higher levels of childhood abuse and neglect were significantly related to higher levels of emotion dysregulation, adding support to theoretical models in which the developmental capacity to adaptively regulate emotions may be disturbed by early disruptive experiences.[9]

In addition, the data from this study support the conceptualization of emotion dysregulation as a distinct construct, related to but not reducible to negative affect.[27] The data suggest that negative affect may be as strongly or more strongly related to some forms of psychopathology than emotion dysregulation (eg, depression) but not to others, particularly more impulsive, self-destructive, or externalizing disorders and behaviors such as substance abuse and suicide attempts. Also, given the high levels of trauma exposure and daily life stress (eg, poverty, neighborhood violence) to which the population of this study was exposed, it is possible that both suicide attempts and substance abuse themselves represent maladaptive emotion regulation strategies that are more likely to be employed in the face of stress by those with higher levels of dysregulated emotions.

Limitations

The primary limitations of this study arise from the use of cross-sectional and retrospective data collection. Due to the cross-sectional nature of the data, we are unable to determine the degree to which emotion dysregulation is a risk factor for development of adult psychopathology, a consequence of certain forms of psychopathology, or a central component of various forms of psychopathology for which it is not a diagnostic criterion. For example, the combination of intrusive experiences, avoidance/numbing, and hyperarousal associated with PTSD could lead to an overall state of emotion dysregulation. Much of the literature on emotion dysregulation suggests a childhood etiology, often involving traumatic adverse childhood experiences including childhood abuse and lack of a secure attachment with caregivers.[56–59] Supporting this model, some longitudinal research indicates that early emotion regulation problems predict later risk for psychopathology.[60–62]

Consistent with the data in this study, a number of recent studies[5,63,64] also suggest that emotion dysregulation may be a “higher order” factor that cuts across multiple psychiatric disorders. Conversely, studies[65–68] focused on heterogeneity within psychiatric diagnoses suggest that subtypes of multiple psychiatric disorders (eg, eating disorders, personality disorders, anxiety disorders, and mood disorders) may be associated with varying degrees of emotion dysregulation.[65–68] Alternately, the relationship between emotion dysregulation and

some psychological disorders may be an interactive cascade in which emotion dysregulation increases vulnerability for the development of psychiatric disorders that in turn exacerbate emotion dysregulation. In PTSD, the presence of trauma-related cues may lead to emotion dysregulation that in turn may lead to higher levels of PTSD symptoms such as avoidance and irritability.

Longitudinal studies are needed to examine the developmental relationship of early life stressors, emotion dysregulation, and psychopathology. In addition, more research evaluating the biomarkers (eg, genetic data, imaging data) of negative affect and emotion dysregulation, as well as the relationship between the 2 variables, is needed to understand the way in which these 2 traits develop, function biologically, interact, and contribute to varying levels and types of psychopathology.

Additionally, we had a relatively homogeneous sample with respect to both race and income, making it important to consider the possibility that factors specific to this low-income, urban, primarily African American sample may relate to the results of the study. For example, a number of studies[69–72] have found a relationship between experiences of racial discrimination and the risk for psychological disorders. Other recent studies[73–75] focusing on emotion dysregulation and related constructs (eg, distress tolerance) point to the importance of taking into account race, gender, and socioeconomic status; one of these recent studies[73] found that low levels of distress tolerance conferred increased risk for alcohol use among whites, delinquent behavior among African Americans, and internalizing symptoms among women. These types of findings highlight the importance of social context in psychiatric research and in the development of treatments and preventive intervention. At the same time, this sample represents a population at very high risk for both depression and PTSD that is generally underrepresented in research on psychopathology. Thus, the data have valuable potential for informing broader public health policies and practices.

Finally, as research on emotion dysregulation has increased dramatically over the last decade, a number of clinician/interviewer-rated and self-report instruments assessing emotion dysregulation have been developed that span a range of underlying constructs.[76,77] The emotion dysregulation measurement used in this study was grounded in research on personality disorders, particularly borderline personality disorder,[78] and the developmental etiology of personality.[79] Our measurement instrument was also based on prior work conducted by our research team on the assessment of affect regulation and dysregulation.[15,27,42,43,78] As with other research in related areas including personality pathology and adult attachment styles, we expect that data gathered from this self-report instrument will diverge somewhat from interviewer-rated and clinician-rated instruments.[80–82] Ideally, future research would include both self-report instruments and clinician/interviewer-rated instruments, tapping multiple facets of emotion regulation. However, we hope that the Emotion Dysregulation Scale used in this study, which was designed on the basis of data from general psychiatric samples and is not intended for any single population, may serve as a useful instrument for the assessment of emotion dysregulation in at-risk or clinical populations.

Clinical Implications

Emotion dysregulation is believed to present in extremes of either overly restricted emotional expression and avoidance or heightened and excessive emotionality and excitement-seeking evident across a number of types of psychopathology.[83] Rumination, panic, self-criticism, social inhibition, interpersonal isolation, concentration difficulties, and attention problems may reflect internalized failures of emotion management, while the externalized behaviors such as aggression, alcohol and substance abuse, disordered eating, self-harm, and suicidality associated with emotion dysregulation may represent, in part, efforts to escape emotions experienced as overwhelming or intolerable.[26,84–87]

Facets of emotion dysregulation may represent core clinical targets in treatments for a range of psychological disorders, not just borderline personality disorder.[88] A greater understanding and more effective measurement of emotion dysregulation may facilitate the process of collaborative goal formation in psychotherapeutic treatments. Treatment goals in individuals presenting with emotion dysregulation might focus on the reduction of affective arousal; increase in affect tolerance; cognitive reappraisal of negative affect states, causes, and consequences; increase in social-perspective–taking during periods of affective intensity; and development of psychosocial coping skills to be used in times of increased emotional distress.

Acknowledgments

Funding/support: This work was primarily supported by the National Institute of Mental Health (grants MH071537, MH078100, and MH082256), Bethesda, Maryland; Emory and Grady Memorial Hospital General Clinical Research Center, Atlanta, Georgia; the National Institutes of Health National Centers for Research Resources (grant M01RR00039), Bethesda, Maryland; the American Foundation for Suicide Prevention, New York, New York; and the Burroughs Wellcome Fund, Research Triangle Park, North Carolina.

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For Clinical Use

- Emotion dysregulation is inherent in a number of forms of psychopathology and may present in extremes of either overly restricted emotional expression and avoidance or heightened and excessive emotionality and excitement-seeking.
- Treatment goals for individuals with emotion dysregulation may include reduction of affective arousal, increase in affect tolerance, and development of psychosocial coping skills to be used in times of increased emotional distress.
- Techniques focusing on social-perspective–taking and cognitive reappraisal of negative affect states, causes, and consequences may be beneficial for individuals with emotion dysregulation.

Table 1

Linear Regression Analyses of Predictor Variables With Measures of Psychological Functioning

	b	SE b	β	*F*	R^2
Posttraumatic stress disorder				21.03***	0.21
Age	0.07	0.12	0.03		
Gender	2.11	2.92	0.03		
Childhood trauma	0.36	0.08	0.21***		
Negative affect	0.49	0.19	0.14*		
Emotion dysregulation	0.19	0.04	0.25***		
Alcohol abuse				9.29***	0.28
Age	0.15	0.07	0.17*		
Gender	−7.88	1.68	−0.37***		
Childhood trauma	0.03	0.04	0.07		
Negative affect	−0.06	0.10	−0.05		
Emotion dysregulation	0.08	0.02	0.34***		
Drug abuse				5.06***	0.21
Age	0.05	0.02	0.22*		
Gender	−0.25	0.52	−0.04		
Childhood trauma	0.03	0.01	0.22*		
Negative affect	−0.06	0.03	−0.22		
Emotion dysregulation	0.02	0.01	0.35**		
Depression				96.72***	0.55
Age	0.04	0.04	0.04		
Gender	1.10	0.87	0.04		
Childhood trauma	0.09	0.02	0.14***		
Negative affect	0.62	0.06	0.44***		
Emotion dysregulation	0.10	0.01	0.34***		
Adaptive functioning				12.12***	0.14

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	b	SE b	β	*F*	R^2
Age	0.00	0.00	0.03		
Gender	0.20	0.10	0.10*		
Childhood trauma	−0.00	0.00	−0.07		
Negative affect	−0.02	0.01	−0.20***		
Emotion dysregulation	−0.00	0.00	−0.18**		

* $P<.05$,

** $P<.01$,

*** $P\leq.001$.

Table 2

Logistic Regression Analysis of Predictor Variables With History of Suicide Attempt

	b	SE b	Exp(B)	Wald[a]
Suicide attempt				
Age	0.02	0.01	1.02	1.61
Gender	0.97	0.33	2.62	8.37**
Childhood trauma	0.03	0.01	1.03	15.24***
Negative affect	0.00	0.02	1.03	0.02
Emotion dysregulation	0.02	0.00	1.02	24.43***

[a] Omnibus $\chi^2 = 74.80$, $P<.001$.

** $P<.01$,

*** $P\leq.001$.