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Attentional Control, Trauma, and Affect Regulation: A Preliminary Investigation

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Abstract

Disengaging and shifting attention from threat-related stimuli may help to reduce negative affect, thereby allowing distressed individuals to function more effectively in their environment. The present pilot study provides an initial examination of associations among attentional control (AC), posttraumatic stress symptoms (PTSS), and affective responding following trauma re-telling. Participants (N = 49) reported baseline affect, described their traumatic event, and completed self-report measures. Affect was re-assessed at 2 time-points following trauma re-telling. AC predicted the degree to which participants *recovered* from trauma elicited negative mood following trauma re-telling, with individuals high in AC showing greater recovery than individuals low in AC. A small to medium effect was observed for PTSS as a moderator of this relationship. Findings suggest that individuals with higher levels of AC are better able to attenuate distress associated with trauma stimuli; further, trauma-related distress may negatively impact one's ability to use AC. Thus, interventions aimed at developing executive attention may be helpful in alleviating trauma-related distress.

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Though a majority of American adults experience one or more traumatic events in the course of their lives (e.g., Kessler, Sonnega, Bromet, Hughes, & Nelson, 1995), only a fraction go on to develop posttraumatic stress disorder (PTSD) (Breslau & Kessler, 2001). Attentional-bias for processing trauma-relevant information has been shown to differentiate between those with and without PTSD (e.g., Beck, Freeman, Shipherd, Hamblen, & Lackner, 2001; Bryant & Harvey, 1997).

Memory network models of PTSD (Foa, Steketee, & Rothbaum, 1989) suggest that environmental stimuli (e.g., trauma stimuli) elicit spreading activation across a network of trauma memory nodes, resulting in a response consistent with the symptoms in PTSD (e.g., reexperiencing, avoidance, hyperarousal; Bryant & Harvey, 1997). Because of the speed with which reactivity occurs, it is believed that the network functions automatically, before higher order regulatory mechanisms can be employed (Derryberry, 2002). However, recent research suggests that higher order regulatory processes may be able to attenuate automatic defensive processes at a relatively early stage of emotion generation (Gyurak & Ayduk, 2007).

Memory Network models fail to account for active efforts to regulate reactivity to trauma cues (Derryberry, 2002). That is, the extent to which an individual is able to exert control over his or her attention to trauma stimuli may play an important role in longer-term psychological outcomes, such as the development of PTSD following trauma. Models of attention in PTSD will be well-served by consideration of individual variation in the ability to use higher level executive functions to regulate or override, automatic emotional responses (i.e., attentional control).

Attention as Two Steps: Bottom-up and Top-down Processing

Recent theories of attention (e.g., Eysenck, Derakshan, Santos, & Calvo, 2007; Metcalfe & Mischel, 1999), distinguish attentional bias from AC by describing attention in the following two steps: (1) the automatic attentional bias for processing threat relevant information (bottom-up) is triggered by perceived threat, and (2) AC strategies (top-down: disengagement, shifting) are used in an attempt to strategically avoid the threat (Amir, Freshman, & Foa, 2002). Executive attention, or AC, is considered necessary for inhibiting dominant responses and is related to concepts such as emotion-regulation, effortful control, and inhibitory control (Raz & Buhle, 2006). Based on this rationale, individuals exposed to potentially traumatic events may use AC to reduce prolonged attentional exposure to trauma-related stimuli; thus, buffering these individuals against the rumination and re-experiencing that is a part of PTSD symptomatology.

PTSD symptoms may be a cause as well as an effect of impaired affective information processing. According to Eysenck et al. (2007), anxiety disrupts the balance between these two attentional systems by provoking an increase in the influence of the stimulus-driven attentional system (bottom-up), and a decrease in the goal-directed attentional system (top-down). In short, anxiety impairs processing efficiency because it reduces AC. Consistent with this view, research has shown that anxiety impairs two of the three executive attentional functions (i.e., inhibition, shifting; for examples see: Graydon & Eysenck, 1989; Lavie, Hirst, de Fockert, & Viding, 2004). Thus, because individuals with higher levels of posttraumatic stress endorse experiencing persistent symptoms of anxiety and heightened arousal, as well as other distressing symptomatology (e.g., reexperiencing, numbing), they may be less able to recruit AC in order to disengage and shift attention from trauma-relevant stimuli due to the impairment of AC. This in turn can serve to maintain or exacerbate psychological distress.

Attentional Control and Affect Regulation

Affect is a central part of the human experience and is highly relevant to the processing of trauma information and posttraumatic stress symptoms. Shifting attention to safe or novel stimuli can help to reduce negative affect (Harman, Rothbart, & Posner, 1997; Nolen-Hoeksema & Morrow, 1993). For example, Derryberry and Reed (2002) found that participants high in AC were more likely to shift attention from threatening cues to safer cues than participants low in AC; furthermore, such shifts in attention occurred more quickly among individuals high in AC. Although this form of attentional avoidance appears to be adaptive, it could be argued that it may lead to more long-term problematic avoidance behaviors (e.g., social phobia, agoraphobia); however, research to date has supported the first proposition. For example, AC predicts better adjustment in adulthood (Kochanska & Knaack, 2003), and is correlated with indices of positive emotionality (e.g., positive affect, extraversion) and inversely related to indices of negative emotionality such as trait anxiety and neuroticism (Compton, 2000; Eisenberg, Fabes, Guthrie, & Reiser, 2000).

Furthermore, highly anxious individuals attend to threatening stimuli longer than individuals low in trait anxiety; not as a result of the facilitation of attentional shifting toward threatening stimuli, but as a function of being slower to disengage from such stimuli (Derryberry & Reed, 1994; Fox, Russo, & Dutton, 2002; Gyurak & Ayduk, 2007). The inability of anxious individuals to quickly disengage from threatening stimuli often leads to further escalation in anxiety and negative affect (Compton, 2000). Thus, the ability to intentionally disengage from threat-related stimuli may help an individual attenuate their distress; in turn, allowing them to remain in and learn from their environment rather than feeling the need to escape from an environment where the threat remains salient.

In sum, evidence suggests that AC may contribute to negative emotionality and poor adaptation to trauma stimuli. Individuals who are unable to disengage their attention from trauma-relevant information may be more likely to ruminate on such experiences and subsequently experience prolonged negative affect (Compton, 2000; Derryberry & Reed, 2002). As such, AC may be an important individual difference factor in post-trauma affective adaptation. Moreover, based on previous research on anxiety and AC (Derryberry & Reed, 2002; Gyurak & Ayduk, 2007), distress associated with trauma recall (i.e., reexperiencing) and PTSS (e.g., hyperarousal) may also impair executive functioning; thus, individuals with greater PTSS may be less able to attenuate trauma related distress using AC.

Despite being implicated in affective processes that underlie PTSD, there has been to our knowledge no examination of the influence of AC on affect regulation in the context of trauma cue stimuli. Nor have studies examined the combined influence of AC and PTSD symptoms (PTSS) on affect responding following trauma cue exposure. As data show that AC can be enhanced through training (Bherer et al., 2008; Jha, Krompinger, & Baime, 2007) delineation of the role of AC, and the extent to which it serves as a buffering mechanism against prolonged negative affect following trauma re-telling may have important clinical implications for those experiencing trauma-related distress.

The Present Study

The present pilot study was designed to provide an initial examination of the association between AC, PTSS, and affective responding following the re-telling of a personal traumatic event. We predicted that individuals high in AC would show significantly greater increases in affective valence following trauma re-telling when compared with individuals low in AC. Further, we expected to see a general trend in affect, in which participants would have unpleasant affective valence immediately following trauma re-telling (T2), followed by an increase towards pleasant affective valence shortly thereafter (T3). Eysenck et al. (2007) posited that anxiety disrupts the balance between bottom-up and top-down attentional systems, in part because attentional resources are allocated to threat-related stimuli. Further, a bias for attending to trauma-related stimuli has been shown in individuals with PTSD (Beck et al., 2001; Bryant & Harvey, 1997); and thus, we expect that individuals with high levels of PTSS will be less able to effectively use AC to attenuate trauma-related distress.

Method

Participants

Participants (N = 49: female = 26) were introductory psychology students recruited from mass testing at a mid-sized university in the northeast as part of a larger study examining information processing in PTSD. To be eligible for study participation, participants had to endorse having experienced a Criterion A trauma, and at least one symptom from each DSM-IV TR PTSD symptom cluster (Clusters B, C, and D: Schnurr et al., 2000). Of the screened sample (N = 999), 154 students were eligible for and were invited to participate in this study. The first 49 students to respond to the invitation were included in the experimental session.

On average, participants were 19.4 (SD = 1.59) years old. Seventy-three percent self-identified as Anglo-Caucasian, 12.2% as Asian, 6.1% as Black, 4.1% as Hispanic or Latino, and 4% endorsed “other.” Fifty-one percent of the participants were freshman, 33% were sophomores, 12% were juniors, and 4% were seniors.

Measures

Screen Measures

Brief Trauma Screen. A brief 7-item trauma screen was administered in a mass testing procedure in which the overwhelming majority of introductory psychology students participate. Adapted from the Traumatic Life Events Questionnaire (TLEQ: Kubany et al., et al. 2000), this measure assesses a range of Criterion A experiences. Both Criterion A1 (exposure) and A2 (the subjective experience of fear, helplessness, or horror) were assessed.

PTSD Checklist – Civilian Version (PCL-C). The PCL-C, administered both during mass testing to screen eligible participants, and in the experimental session was used to measure PTSD symptom severity. The PCL-C is a brief self-report measure that assesses Criteria B, C, and D of the DSM-IV TR PTSD construct (Weathers, Huska, & Keane, 1991). The PCL-C has strong psychometric properties, including internal reliability, sensitivity, specificity, and concurrent validity (Blanchard, Jones-Alexander, Buckley, & Forneris, 1996; Weathers, Litz, Herman, Huska, & Keane, 1993). Internal consistency in this sample for the total score was .89.

Experimental Session Measures

Affect Grid. The Affect Grid was used to assess state affect at three time-points during the experimental session (Russell, Weiss, & Mendelsohn, 1989). This self-report measure assesses two distinct dimensions of current affect; positive-negative, and arousal-sedation. In this study, only affective valence (positive-negative) was examined. Participants rate each dimension on a 9-point scale. Higher values indicate greater endorsement of that affective dimension. The Affect Grid has good reliability and also good convergent validity with other similar measures (Russell et al., 1989). Participants reported on their affect “right now” at each assessment point.

Clinician Administered PTSD Scale (CAPS). The CAPS for the DSM-IV (Blake et al., 1995) is an interviewer-administered measure used to assess lifetime and current PTSS in each of the three symptom clusters (re-experiencing, avoidance, hyperarousal). For the purposes of this study we administered only the first part of the CAPS which assesses Criterion A trauma. Emphasis was placed on recreating the assessed events as vividly as possible; therefore, participants were asked to describe each event in as much detail as possible. Each interview was audio-taped and reviewed by the second author and a group of graduate-level raters to confirm that Criterion A trauma was met.

Life Events Checklist (LEC). The LEC (Blake et al., 1995), used in conjunction with the CAPS, provides participants with a list of 17 potentially traumatizing events (e.g., physical assault, chronic illness, motor vehicle accident). Participants are asked to specify which events they have experienced. The participant identifies three events that s/he considers to be the worst, or most upsetting. These events are then recounted during the CAPS interview.

Big Five Inventory (BFI). The BFI (John, Donahue, & Kentle, 1991) is a 44-item measure that assesses five personality dimensions: Openness to Experience, Conscientiousness, Extraversion, Agreeableness, and Neuroticism. The BFI has good reliability (John & Srivastava, 1999) and convergent validity (e.g., NEO Personality Instrument: Costa & McCrae, 1992; Trait Descriptive Adjectives: Goldberg, 1992). Here, we were interested in personality traits (e.g., Extraversion, Neuroticism), found previously (Derryberry & Reed, 2002), to be related to AC. Furthermore, because Neuroticism is associated with affect and PTSS, the BFI Neuroticism score was used as a covariate in analyses. Subscale alpha coefficients were as follows: Openness (.79), Conscientiousness (.70), Extraversion (.84), Agreeableness (.83), and Neuroticism (.82).

Attentional Control Scale (ACS). The 20-item ACS (Derryberry & Reed, 2002) measures general capacity for controlling attention, and was created by combining attentional focusing and shifting scales. Factor analysis indicates that the scale is made up of 3 subfactors related to the abilities (a) to focus attention (e.g., “My concentration is good even if there is music in the room around me"), (b) to shift attention (e.g., "After being interrupted or distracted, I can easily shift my attention back to what I was doing before"), and (c) to flexibly control thought (e.g., "I can become interested in a new topic very quickly when I need to"). The ACS shows good internal reliability. Further, higher scores are predictive of greater disengagement from threatening stimuli in anxious individuals (Derryberry & Reed, 2002), and more activation in brain areas related to top-down regulation of emotion (Matthews, Yiend, & Lawrence, 2004). Internal consistency within this sample was excellent, $\alpha = .92$.

Procedure

During the experimental session, participants first completed measures assessing demographic information (e.g., gender, age, ethnicity), and state affect (i.e., Affect Grid). Next, participants took part in a structured clinical interview to assess Criterion A trauma exposure (i.e., CAPS). Once the participants' three most distressing life events were identified (via the LEC) the interviewer asked the participant to describe each event in as much detail as possible.

Upon completion of the CAPS interview, participants completed the PCL and were instructed to report symptomatology in relation to events that had been identified in the interview as meeting Criterion A for PTSD. As expected, with the addition of these instructions, participants reported significantly less PTSS during the experimental session than during mass testing (experimental session: M = 37.27 [SD] = 12.29, and mass testing: M = 49.65 [SD] = 9.62). Furthermore, fewer participants met for having experienced Criterion A2 (the subjective experience of intense fear, helplessness, or horror) of the diagnostic criteria for PTSD (DSM-IV-TR; American Psychiatric Association, 2000), in response to their potentially traumatic event at the experimental session ($n = 40$).

Following completion of the PCL, participants completed a battery of self-report measures including: a second measure of affect (Affect Grid: T2; approximately 30 minutes after T1), BFI, ACS, and a final measure of affect (Affect Grid: T3; approximately 40 min. after T1).

Data Analytic Plan

Change in affective valence following trauma re-telling (Mood Recovery) was calculated by dividing the change in affect from T2 to T3 by the change in affect from T1 to T2; thus, the numerator accounted for each individuals change from baseline affect (T1 to T2). This fraction was then multiplied by 100 to get the percent of Mood Recovery (Gillihan, 2002).

Strong autoregressivity is expected when measuring changes in affect (Joreskog, 1979). Because of these autoregressive effects it is not uncommon for researchers (e.g., Coffey et al., 2002; Compton, 2000; Brewin & Lennard, 1999) to preclude baseline affect from statistical analyses when examining changes in affect. Additionally, the sample in the present study is relatively small. Given that the relationship between AC and valence across time might be difficult to detect due to low power and autoregressivity when accounting for baseline affect, analyses on end-point valence were conducted with and without baseline affect as a covariate.

Prior to conducting analyses on primary hypotheses descriptive statistics were examined (i.e., gender, age, ethnicity, year in school). Additionally, bivariate correlations were calculated in order to understand associations among variables of interest (i.e., PTSS, BFI personality constructs, affect; T1, T2, T3, Mood Recovery). To ensure that trauma re-telling elicited the expected changes in affect a repeated measures ANOVA was conducted with affective valence at each time-point (T1, T2, T3) as the within-subjects repeated measure.

Regression Models

A series of hierarchical multiple regressions were conducted to examine the association between: (1) AC and Mood Recovery, and (2) AC and end-point (T3) affective valence. In the second step of the first regression analysis Neuroticism served as a covariate. In the second step of the second analysis baseline affective valence (T1) and Neuroticism were entered as covariates. Each regression model was run a second time with an additional step; PTSS and an interaction term, comprised of AC (ACS) and PTSS (PCL-C) were entered into each model.

Results

Bivariate Correlations

As expected, AC was found to be associated with indices of positive emotionality (i.e., Openness to Experience, $p < .001$) and have marginally significant inverse associations with aspects of negative emotionality (i.e., Neuroticism, $p = .06$). Openness to Experience was not associated with affective valence, *ns*, and therefore, was not included in the following multivariate analyses. There was no association at the bivariate level between AC and PTSS, *ns*. There was a significant positive relationship between AC and Mood Recovery ($p = .018$) and a marginally significant positive relationship between AC and T3 valence ($p = .075$). See Table 1 for means, SD's, and inter-correlations.

Multivariate Tests

A repeated measures ANOVA indicated that trauma re-telling elicited the expected changes in affective valence across time, with the contrast indicating a significant quadratic trend in time, $F(1,47) = 31.21$, $p < .001$. The nature of this trend was that valence was "pleasant" at baseline (T1: $M = 5.43$ [SD] = 2.36), "unpleasant" immediately following trauma re-telling (T2: $M = 3.92$ [SD] = 1.58), and "pleasant" following completion of self-report measures (T3: $M =$

5.18 [SD] = 1.86), with end-point valence (T3) being less than ½ point lower than it had been at baseline. For a plot of this trend see Figure 1.

Predicting Mood Recovery. As seen in Table 2, the first regression analysis showed a significant main effect of AC on Mood Recovery, $p < .05$. AC remained a significant predictor of Mood Recovery when Neuroticism was entered into the model, $p < .05$. There was no association between Neuroticism and Mood Recovery, *ns*. As predicted, individuals higher in AC showed greater increases in affective valence following trauma re-telling.

In the first moderation analysis, examining PTSS as a moderator of the relationship between AC and Mood Recovery, there was no main effect of PTSS on Mood Recovery, *ns*. Additionally, the interaction term (i.e., AC x PTSS) was not a significant predictor of Mood Recovery; however, a small to medium effect size was observed ($p = .23$). When Neuroticism was added to the model in the final step, AC remained a significant predictor of Mood Recovery, $p < .05$ (see Table 2). There was no association between Neuroticism and Mood Recovery, *ns*.

Predicting Time 3 Affect. The results of the second hierarchical multiple regression analysis showed a marginally significant main effect of AC on T3 ($p = .075$). When baseline affect and Neuroticism were entered into the model in the second step, AC was no longer a marginally significant predictor of T3 valence, *ns*; however, a small to medium effect size for AC was still observed. Baseline affect was, as expected, a significant predictor of T3 valence, $p < .05$. Though neuroticism was associated with T3 valence in bivariate analyses, this association was not significant in a multivariate context, *ns*.

In the second moderation analysis, examining PTSS as a moderator of the relationship between AC and T3 valence, there was no main effect of PTSS, *ns*. Furthermore, no interaction was found between AC and PTSS in predicting T3 valence, *ns.* As expected, there was a significant main effect of T1 on T3, $p < .05$. The association between Neuroticism and T3 valence was not significant in a multivariate context, *ns*. Findings from these analyses are presented in Table 3.

Discussion

Findings from this pilot work were consistent with previous research (e.g., Coffey et al., 2002; Elzinga Schmahl, Vermetten, Dyck, & Bremner, 2003); trauma re-telling elicited significant decreases in affective valence. Additionally, for the first time in an empirical study, we found that attentional control (AC) predicted the degree to which participants *recovered* from trauma-elicited negative mood following trauma re-telling. These findings are consistent with research showing that AC is negatively associated with negative affect following negative mood manipulation (Compton, 2000). Furthermore, AC was associated with affective valence at Time 3 (10 minutes post trauma re-telling), but not at Time 2 (immediately following trauma re-telling). This delayed effect is consistent with research showing that the relationship between mood induction and one's mood is dependent on: (1) the amount of time between the mood induction and the measurement of mood, and (2) the magnitude of the cue-exposure (Forgas & Ciarrochi, 2002). That is, the effect of AC may have been delayed because Time 2 mood measurement was taken immediately following trauma re-telling and participants were exposed to the threat-related stimuli for a long period of time (i.e., approximately 30 minutes). Furthermore, this is the first study to examine the effect of AC on negative affect using stimuli that are ideographic in nature. For example, a study by Compton (2000) illustrates a non-idiographic approach to the induction of negative mood, in which participants watch a 10 minute segment of a Holocaust documentary. In examples such as this, one might expect the distress associated with the mood manipulation procedure used in the present study to take far longer to attenuate. As expected, the association between AC and T3 valence was diminished when T1 valence was controlled for in regression analysis. Importantly, the effect of AC on T3 valence was independent of PTSS; that is, one's level of trauma related distress did not interact with AC to predict end-point mood.

Theories of threat-related attention (i.e., Attentional Control Theory: Eysenck et al., 2007; Hot/Cool-System Theory: Metcalfe & Mischel, 1999) emphasize the ability of anxiety and stress to impair higher order executive functioning. Our test of this theoretically-based (PTSS X AC) interaction was not statistically significant, likely due to the small size of this pilot sample. However, we did observe a small to medium effect for PTSS as a moderator in this relationship. The value of interpreting the magnitude of effects rather than relying on *p* values, especially when sample sizes are relatively small, has been noted (e.g., Cohen, 1994; Denis, 2003; Thompson, 1996). Whereas statistical significance is in part a function of the size of the sample, effect sizes remain consistent across studies with different sample sizes. Had our sample size been larger, the above small-medium effect in all likelihood would have reached statistical significance. Of course, this preliminary finding will need to be replicated. Still, our data offer early support for above mentioned theories of threat-related attention suggesting that anxiety and stress (i.e., PTSS) may affect one's ability to use higher order executive attention to regulate trauma-related distress. Still, the size of this effect suggests that, though there do appear to be differences between individuals with and without significant PTSS in the ability to employ higher-order executive functioning (i.e., AC) to attenuate distress, these differences are modest.

Limitations and Future Directions

This was a preliminary pilot study, and thus was not powered (n = 49) to detect interaction effects. As noted above, replication of these findings will add to confidence in their stability. Furthermore, only nine participants met full criteria for PTSD. As such, it is unknown to what extent findings suggesting that individuals with higher levels of PTSS are able to use AC to attenuate trauma-related distress can generalize to individuals with full PTSD. Future studies may build on the present work by employing between-subjects designs with individuals with more delineated symptom presentations (i.e., groups: PTSD versus Non-PTSD). Furthermore, participants were enrolled college students, and thus, participants reporting high levels of PTSS were likely functioning at a higher level than a trauma-exposed clinical sample. Caution should be taken in generalizing these findings to a more functionally impaired clinical population.

Alcohol consumption (Abroms, Gottlob, & Fillmore, 2006) and sleep deprivation (Doran, Van Dongen, & Dinges, 2001) have been identified as factors affecting executive attention. Furthermore, sleep difficulties are more prevalent among college students than among the general population (Buboltz, Brown, & Soper, 2001), and college students are more likely to participate in heavy episodic drinking than their peers who do not attend college (Wechsler, Dowdall, Davenport, & Castillo, 1995). Neither of these factors was accounted for in the present study, and thus, the degree to which our findings are the result of alcohol consumption or sleep difficulties the night before study participation is unknown. Future research will benefit from the assessment of these factors and their influence on attentional control processes.

Also, future research may improve on the current study design by using additional post-mood manipulation measures of affect, as some of the most interesting findings pertained to the dynamic change in mood following trauma re-telling. Methods such as latent growth modeling utilizing data over multiple assessment points could be used to examine the trajectory of affective valence in future studies and explore whether group category (levels of AC or PTSS status) is predictive of mood change trajectories. Further, while AC is commonly described as the “gatekeeper” in self-regulation, the inclusion of additional affect regulation strategies (e.g., situation selection, situation modification, cognitive change, and response modulation; Ochsner & Gross, 2004) and general emotion-regulation constructs (e.g., impulse control, emotional clarity, emotional awareness; Gratz & Roemer, 2004) may be warranted in future studies.

Conclusions

Findings from this initial test of theorized associations among AC, PTSS, and affect represent an important first step in understanding the role of higher order executive attention in regulating trauma-related negative affect. Results suggest that trauma survivors may experience prolonged negative mood states as a result of deficits in executive attention. Because AC can be enhanced through training (Jha et al., 2007), interventions aimed at developing executive attention, emotion-regulation abilities, and mindfulness may be of benefit to individuals experiences trauma-related distress. Additionally, our findings offer some evidence, albeit preliminary, that individuals with high PTSS show some, modest impairment in their ability to attenuate distress associated with trauma cues through the use of AC. Replication with a larger sample size, and with individuals with more delineated symptom presentations will help to build on the findings reported here.

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Table 1:

Descriptive statistics and correlations

Variable	Mean (SD)	2	3	4	5	6	7	8	9	10	11
1 PCL_C	37.27 (12.29)	-.18	.05	-.02	-.07	-.28	-.33*	-.20	-.07	.29*	-.08
2 T1-VAL	5.43 (2.36)		.20	.40**	.19	.16	.16	.26	.34*	-.44**	.21
3 T2-VAL	3.92 (1.58)			.63***	.11	.12	.06	.21	-.06	-.22	.03
4 T3-VAL	5.18 (1.86)				.26	.18	.17	.23	.08	-.30*	.23
5 ACS	52.18 (11.00)					.51***	.22	.16	-.14	-.27	.34*
6 BFI-O	39.10 (6.04)						.34*	.41**	.19	-.32*	.16
7 BFI-C	31.73 (5.53)							.23	.15	-.03	.06
8 BFI-E	27.80 (6.38)								.18	-.52***	-.02
9 BFI-A	30.22 (6.92)									-.54***	.05
10 BFI-N	24.41 (6.32)										-.08
11 M-REC	.432(1.08)										

Note. *p<.05, **p<.01, ***p<.001. For all variables, N = 49. PCL_C: Posttraumatic Stress Disorder Checklist-Civilian; T1-VAL: Valence at Time-Point 1; T2-VAL: Valence at Time-Point 2; T3-VAL: Valence at Time-Point 3; ACS: Attentional Control Scale; BFI-O: Big Five Inventory-Openness Subscale; BFI-C: Big Five Inventory-Conscientiousness Subscale; BFI-E: Big Five Inventory-Extraversion Subscale; BFI-A: Big Five Inventory-Agreeableness Subscale; BFI-N: Big Five Inventory-Neuroticism Subscale; M-REC (Mood Recovery): [(T3VAL-T2VAL)/(T1VAL-T2VAL)]x100%

Table 2

Hierarchical Multiple Regression Analysis With Mood Recovery as Outcome

Step	Predictor	B	β	Adj R^2
Primary Analysis				
1	AC	.03	.34*	.10
2	AC	.03	.34*	.08
	Neuroticism	.00	-.02	
Moderation Analysis				
1	AC	.03	.33*	.09
	PTSS	-.00	-.05	
	AC x PTSS	-.00	-.17	
2	AC	.03	.34*	.07
	PTSS	-.00	-.01	
	AC x PTSS	-.00	-.17	
	Neuroticism	.01	.03	

Note. *p<.05, N = 49. AC: Attentional Control; PTSS: posttraumatic stress symptoms; AC x PTSS: interaction term

Table 3

Hierarchical Multiple Regression Analysis With Time 3 Affect as Outcome

Primary Analysis				
Step	Predictor	B	β	Adj R^2
1	AC	.04	.26	.05
2	AC	.03	.17	.15
	T1 Affect	.23	.31*	
	Neuroticism	-.04	-.12	
Moderation Analysis				
1	AC	.04	.25	.02
	PTSS	.00	.01	
	AC x PTSS	-.00	-.11	
2	AC	.03	.16	.14
	PTSS	.02	.10	
	AC x PTSS	-.00	-.14	
	T1 Affect	.26	.33*	
	Neuroticism	-.04	-.13	

Note. $^*p < .05$, $N = 49$. AC: Attentional Control; PTSS: posttraumatic stress symptoms; AC x PTSS: interaction term; T1 Affect: baseline affective valence

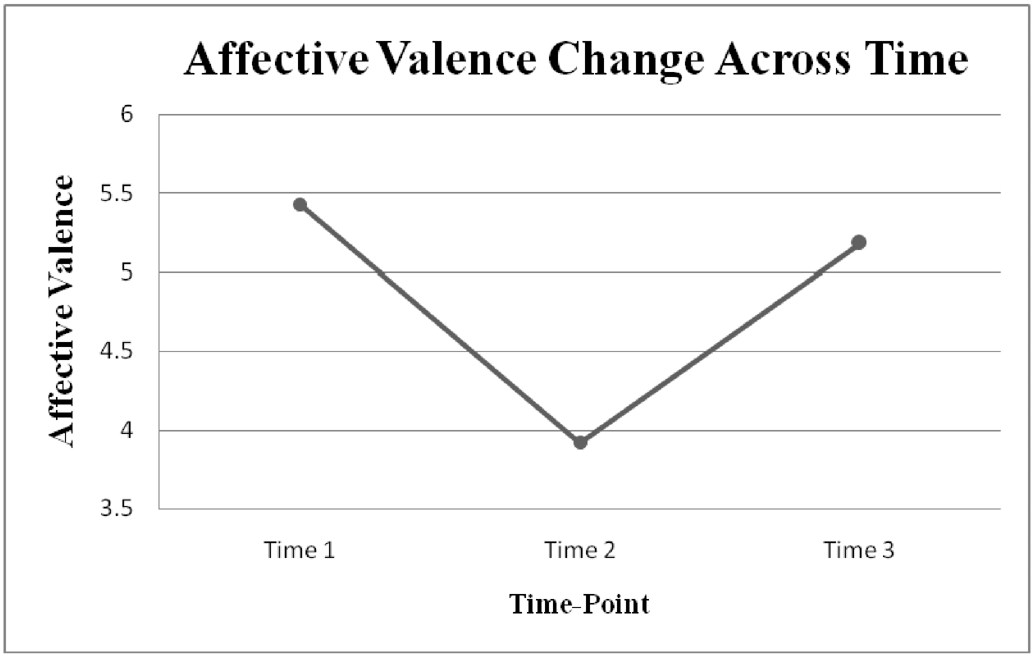

Figure 1. Mean affective valence ratings plotted across time. (Affective valence measured on a 9-point scale: 1 = unpleasant, 5 = neutral, and 9 = pleasant)