PTSD Symptoms and Perception of Cognitive Problems: The Roles of Posttraumatic Cognitions and Trauma Coping Self-Efficacy

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Objective: Posttraumatic stress disorder (PTSD) is associated with mild neurocognitive deficits, yet clients often complain of cognitive problems that exceed what their objective performance demonstrates. In addition, PTSD is associated with negative appraisals about the self, traumatic event, and one’s ability to cope. This study examined posttraumatic cognitions as a moderator, and trauma coping self-efficacy as a mediator, of the relationship between PTSD symptoms and self-report of cognitive problems.

Method: A sample of 268 trauma-exposed adults completed the PTSD Checklist for DSM–5, the Posttraumatic Cognitions Inventory, the Trauma Coping Self-Efficacy Scale, the Cognitive Self-Report Questionnaire, and the Quality of Life Scale. Results: Negative self-appraisals was a significant moderator in the relationship between PTSD symptoms and perception of cognitive problems ($\beta = -0.252, p = 0.001$). In participants with high levels of negative posttraumatic cognitions, perception of cognitive problems was high regardless of PTSD symptom level. In a mediator analysis, there was a significant indirect effect of trauma coping self-efficacy ($b = .125, 95\% CI [0.088, .172]$). Finally, there was evidence of moderated mediation, such that trauma coping self-efficacy was a mediator only when posttraumatic cognitions were low or average. Conclusions: Results indicate that posttraumatic appraisals and coping self-efficacy play significant roles in perception of cognitive problems following trauma. Clinically, in patients for which there is a perception of cognitive impairment that is not borne out in neuropsychological testing, cognitive–behavioral therapy focused on altering negative self-perceptions and appraisals may be beneficial.

Keywords: PTSD, appraisals, cognitive problems, coping self-efficacy, self-perceptions

Posttraumatic stress disorder (PTSD) has been fairly consistently associated with neurocognitive impairment, including deficits in verbal memory, working memory, attention, processing speed, and executive functioning (Brewin, Kleiner, Vasterling, & Field, 2007; Johnsen & Asbjørnsen, 2008; Scott et al., 2015). It should be noted that the magnitude of these deficits tends to be small, although differences are found between participants with and without PTSD, performance scores tend not to show clinically significant impairment (defined as 1.5 or 2 standard deviations below population means; e.g., Gilbertson, Gurvits, Lasko, Orr, & Pitman, 2001; Nijdam, Gerons, & Olff, 2013; Samuelson, 2011; Samuelson et al., 2006; Scott et al., 2015; Vasterling, Bailey, Constans, & Sutker, 1998). However, this level of performance likely represents a noticeable change in functioning for individuals with PTSD who compare their performance with their pretrauma functioning.

Clinicians often note, and some research has demonstrated, that patients with PTSD complain of memory and attention problems to a degree that may not represent their actual objective neurocognitive performance. We recently found that perception of cognitive problems was not associated with any measure of objective neuropsychological performance, which was in the average range, in Iraq and Afghanistan veterans with PTSD (Samuelson et al., 2016). The lack of relationship between self-perception and actual performance, also found in an earlier study of Persian Gulf War veterans (Binder et al., 1999), would indicate that many individuals with PTSD believe they have problems with memory, attention, and thinking when, objectively, they do not show impairment. In addition, perception of cognitive problems was related to self-report of functional impairments in the social, physical, and emotional realms, whereas objective neurocognitive functioning was not (Samuelson et al., 2016). These findings would suggest that there may be other psychological issues at play that may influence one’s perception, and possibly misperception, of cognitive problems.

Posttraumatic Cognitions

Two primary theories of PTSD emphasize the role of cognitions in the development and maintenance of PTSD. Foa and Rothbaum’s (1998) emotional processing theory posits that there are...
two categories of negative cognitions prominent in individuals with PTSD: the belief that the world is a dangerous place, and the belief that one is incompetent or helpless in the face of trauma and posttraumatic symptoms. Ehlers and Clark’s (2000) cognitive theory suggests that these negative cognitions produce inadequate, if not harmful, coping mechanisms that maintain or exacerbate PTSD symptoms. Taken together, these theories suggest that appraisals centered on the traumatic event and the behavioral response, the posttraumatic symptoms and ability to cope with them, and cognitions about self, world, and one’s role in the traumatic event (self-blame) influence the course and prognosis of PTSD. In addition to being associated with PTSD (Foa et al., 1999; Kolls, Robinson, & Tracy, 2004; Laposa & Alden, 2003; Moser, Hajcak, Simons, & Foa, 2007), posttraumatic cognitions have also been associated with a number of distressing outcomes, including depression (Davis et al., 2016), lower levels of mastery (i.e., ability to use knowledge of mental states to solve problems; Davis et al., 2016), negative perceptions of dyadic interactions and social support (Robinaugh et al., 2011), and guilt-related suicidal ideation (Tripp & McDevitt-Murphy, 2016). Moreover, if left untreated, negative cognitions may become amplified in those with chronic PTSD symptoms (Dekel, Peleg, & Solomon, 2013). Through prolonged exposure therapy, changes in negative posttraumatic and posttraumatic cognitions were associated with PTSD symptom reduction (Foa & Rauch, 2004).

Less research has been conducted examining posttraumatic cognitions as a potential moderator between PTSD symptomatology and negative outcomes. A moderator model would indicate that the relationship between two variables (PTSD symptoms and perception of cognitive problems) is influenced by a third variable (posttraumatic cognitions). In contrast, a mediation model presumes a directional and causal influence of PTSD symptoms on posttraumatic cognitions, which in turn exerts an indirect effect on perception of cognitive problems. However, prior theoretical models do not suggest that posttraumatic cognitions necessarily follow PTSD, and instead may influence the development of PTSD (Ehlers & Clark, 2000). Using a moderator framework, we hypothesize that negative posttraumatic cognitions influence the relationship between PTSD symptoms and perception of cognitive problems. First, we would expect that when PTSD symptoms are high, perception of cognitive problems would be high, regardless of the influence of posttraumatic cognitions. That expectation would be based on the plethora of research showing neurobiological changes associated with PTSD (Sherin & Nemeroff, 2011) that likely play a role in the well-documented neurocognitive deficits (Scott et al., 2015). Concomitantly, in trauma survivors with lower levels of PTSD symptoms, we would expect there to be low levels of perception of cognitive problems. However, in trauma survivors with negative trauma-related cognitions such as self-blame, distrust of others, and beliefs that the world is dangerous, these negative appraisals may influence perception of cognitive problems even if other PTSD symptoms are not present. Negative posttraumatic appraisals, particularly when they involve self-perceptions of one’s own role in the traumatic experience, have the potential to exert a strong influence on self-perceptions of impairment, perhaps even in the absence of objective evidence of neurocognitive deficits.

**Trauma Coping Self-Efficacy**

Social–cognitive theory (Bandura, 1997) describes how appraisals interact with environmental challenges, and has been used to explain an individual’s adaptation to stress or trauma (Benight & Bandura, 2004). One key element of social–cognitive theory is coping self-efficacy (CSE), defined as an individual’s belief in his ability to impact his own well-being through his own actions. Trauma CSE specifically is defined as the trauma survivor’s beliefs in his or her ability to cope following trauma (Benight & Bandura, 2004). Although posttraumatic cognitions and CSE are similar constructs, in that they both involve negative appraisals, posttraumatic cognitions are more general assumptions about the self and world, whereas trauma CSE is focused specifically on the belief in one’s ability to manage posttraumatic recovery demands. These beliefs influence one’s perceived control over various post-trauma responses, such as emotion regulation, ability to seek help, managing distressing thoughts or dreams, and returning to “normal.” Higher trauma CSE indicates that an individual feels capable in effectively managing posttrauma symptoms and recovery demands.

Poor CSE is highly related to PTSD symptomatology as well as recovery. In fact, it has been shown to be a greater predictor of posttrauma recovery than commonly studied predictors, including social support, previous psychopathology, and peritraumatic dissociation (Benight et al., 2015). Benight and colleagues have documented the role of CSE as a mediator between acute stress symptoms and later posttraumatic distress in both cross-sectional (Benight, Swift, Sanger, Smith, & Zeppelin, 1999) and longitudinal studies (Benight & Harper, 2002; Bosmans, Benight, van der Knaap, Winkel, & van der Velden, 2013). In addition, CSE functioned as a mediator in the relationship between posttraumatic cognitions and posttraumatic distress (Cieslak, Benight, & Caden Knaap, Winkel, & van der Velden, 2013). In addition, CSE functions as a mediator in relationships between trauma responses and negative outcomes.

More recent studies have drawn into question that the relationship between PTSD symptoms and CSE reflects a bidirectional process or that trauma CSE necessarily follows PTSD symptomatology. By utilizing a cross-lagged approach, Bosmans and van der Velden (2015) were able to determine direction of influence and longitudinal interplay between PTSD symptoms and CSE. They found that CSE predicted longitudinal PTSD symptoms over and above earlier PTSD symptom levels, supporting the notions that CSE plays an important role in trauma recovery and that is not necessarily the result of PTSD symptoms. Both models, either conceptualizing CSE as a mediator or as an influence on PTSD symptom recovery or maintenance, support social–cognitive theory, which maintains that CSE is malleable to change and is an interational process between cognitions, psychological states, and the environment.

**Goals of the Present Study**

The goal of the present study was to examine the influence of two trauma-related psychological constructs—posttraumatic cognitions and trauma CSE—in the relationship between posttraumatic stress symptoms (PTSSs) and perception of cognitive problems in a large sample of trauma survivors. First, we hypothesized that the relationship between PTSSs and self-report of cognitive
problems would be moderated by posttraumatic cognitions, such that when there are high levels of negative posttraumatic cognitions about the self and the world, perception of cognitive problems would be high, regardless of PTSS levels. Next, we hypothesized that trauma CSE would serve as a mediator in the relationship between PTSSs and self-report of cognitive problems. We anticipated that there would continue to be a direct effect of PTSSs, given the neurobiological effects of PTSS on neurocognitive functioning (Sherin & Nemeroff, 2011), but also a significant indirect effect of trauma CSE, such that one’s belief in coping ability would influence perception of cognitive problems. An exploratory aim was to investigate possible evidence of moderated mediation, examining the role of trauma CSE in the relationship between PTSSs and perception of cognitive problems when considering the influence of posttraumatic cognitions. As both posttraumatic cognitions and CSE involve appraisals (from general to specific), yet are hypothesized to have different roles in their influence on perception of cognitive problems (as either a moderator or a mediator), we sought to better understand the interactional process of the two variables together. Finally, we examined the relationship between perception of cognitive problems and quality of life, in order to assess potential functional outcomes related to these perceptions as well as clinical implications. We hypothesized that perception of cognitive problems would be related to poorer perceived quality of life, after controlling for the influence of PTSSs.

Method

Participants

Four hundred seventy adults responded to an advertisement from an online survey system, Amazon’s Mechanical Turk (MTurk; mturk.com), seeking participants who had experienced a traumatic event. Research has demonstrated that MTurk workers match the general U.S. population more closely than undergraduate and Internet board samples with regard to gender, age, race, and education (Buhrmester, Kwang, & Gosling, 2011; Paolacci, Chandler, & Ipeirotis, 2010). To take part in the study, participants were required to be at least 18 years old, be fluent in English, live in the United States, and endorse the following screening question before completing the measures:

Have you ever experienced a stressful or traumatic life event where you believed your life was in danger, or the life of a loved one was in danger, or you were in danger of being seriously injured? For example, a serious accident, disaster, physical or sexual assault, combat, domestic violence, or childhood physical or sexual abuse.

Of the initial 470 adults who took the survey, 378 responded “yes” to this question endorsing a trauma history and then completed an online consent form and the remainder of measures. They were compensated $2.00 for completing the study measures, which took between 30 and 60 min to complete. Prior to completion of the PTSD-Checklist for DSM-5 (PCL-5; Weathers et al., 2013), participants were asked to describe their worst traumatic event in their lifetime and respond to the PCL with that event in mind. These event descriptions were reviewed by the first author to verify that they met the Criterion A definition of the Diagnostic and Statistical Manual of Mental Disorders (5th ed.; DSM-5; American Psychiatric Association, 2013) diagnostic criteria and were subsequently included in analyses. This resulted in a total of 268 participants who experienced a traumatic event, completed all measures, and were included in analyses.

Frequencies of demographic characteristics of the sample can be found in Table 1. The sample was slightly more male than female (53.6%), primarily between the ages of 20 to 39 years (77%), mostly White (80%), and the majority had some college education or a bachelor’s degree (66.7%). Four percent were veterans or service members. Participants completed the PCL-5 for their most distressing event: 31% reported on motor vehicle accidents; 12.7%, other accidents; 10%, adult physical assault; 8.2%, child sexual abuse; 7.5%, sudden death of a loved one; 7%, disaster, 6.3%, witnessing death or violence; 5%, child physical abuse; 4.5%, intimate partner violence; 2.6%, adult sexual assault; 2%, combat; 1.5%, childhood witnessing of intimate partner violence; 1.1%, life threatening illness; and .4%, childhood neglect. We created trauma-type groupings in order to assess whether trauma type affected or biased the relationships between our variables of interest. The groupings were (a) accidents, n = 84; (b) child maltreatment, n = 40; (c) adult interpersonal violence, n = 51; and (d) other traumas, including life-threatening illness and sudden death of loved ones, n = 93. With only four participants reporting a history of combat, this trauma type could not serve as its own grouping and was included in Group 3.

Measures

Participants first completed a 10-item demographic questionnaire that assessed for background characteristics such as age,
race, ethnicity, military service, and education. Participants then completed the measures described below.

The Brief Trauma Questionnaire (BTQ; Schnurr, Vielhauer, & Findler, 2002) is a 10-item self-assessment measure assessing exposure to traumatic events.

The PTSD Symptom Checklist for DSM–5 (PCL-5; Weathers et al., 2013) is a 21-item self-report measure of PTSD symptom severity. The PCL-5 has strong internal consistency and convergent validity (Blevins, Weathers, Davis, Witte, & Domino, 2015). The internal consistency for this sample was $\alpha = .95$.

The Posttraumatic Cognitions Inventory (PTCI; Foa et al., 1999) is a 33-item measure of cognitions and appraisals about the self, world, and self-blame following a trauma. The total score, which is a sum of all items, was used. Sample items include “I am a weak person” (self), “The world is a dangerous place” (world), and “Somebody else would have stopped the event from happening” (self-blame). Higher scores represent more negative cognitions. The PTCI has excellent internal consistency, test–retest reliability, and validity (Foa, Ehlers, Clark, Tolin, & Orsillo, 1999). Internal consistency for the present sample was $\alpha = .97$.

The Trauma Coping Self-Efficacy Scale (CSE-T; Benight et al., 2015) is a nine-item measure that assesses self-perception of trauma-related CSE. Items follow a prompt asking respondents to rate on a scale of 1 (“I’m not at all capable”) to 7 (“I’m totally capable”) how they feel, for instance, “Accept[ing] what happened” and “Manag[ing] distressing dreams or images about the trauma.” Test–retest reliability, internal consistency, and convergent and discriminant validity have been established in samples of hospitalized trauma patients and disaster survivors (Benight et al., 2015). Internal consistency for this sample was $\alpha = .93$.

The Cognitive Self-Report Questionnaire (CSQR; Spina, Ruff, & Mahncke, 2006), Cognitive subscale, was used to measure self-perception of cognitive problems. It consists of 10 items pertaining to memory and attention concerns within the last 2 weeks and includes items like “I have felt I have a good memory” and “I have been able to remember numbers.” Concurrent validity has been established (Spina et al., 2006) through highly significant correlations with the Cognitive Failures Questionnaire (Broadbent, Cooper, FitzGerald, & Parkes, 1982). Internal consistency for this sample was $\alpha = .86$.

The Quality of Life Scale (QOLS; Burckhardt & Anderson, 2003) is a 16-item measure that assesses five domains of quality of life: material and physical well-being, relationships with other people, social and community activities, personal development and fulfillment, and recreation. The QOLS derives a total score for all domains. The measure has strong reliability and validity (Burckhardt & Anderson, 2003). Internal consistency for this sample was $\alpha = .94$.

### Data Analysis

The hypothesis that the relationship between PTSSs and perception of cognitive problems is moderated by negative posttraumatic cognitions was tested through an ordinary least squares regression. Independent variables were centered at the mean prior to analysis to enhance interpretability of the coefficients, and heteroskedastic-consistent standard errors were implemented to reduce potential problems with heteroskedasticity (Hayes & Cai, 2007). To test the hypothesis that the relationship between PTSSs and perception of cognitive problems is mediated by CSE, the significance of the indirect effect was assessed through bias-corrected bootstrapped confidence intervals with 5,000 replications, as this approach has superior power to other tests of indirect effects (MacKinnon, Lockwood, & Williams, 2004). Bootstrapping (Efron & Tibshirani, 1993) is a resampling procedure in which the parameter of interest (in this case, the indirect effect) is sampled with replacement from the original data set and recalculated a specified number of times (e.g., 5,000) to provide a more robust estimate of its distribution. Bootstrapped indirect effects were considered significant if the 95% confidence intervals (CIs) did not contain zero. Moderated mediation was tested within a structural equation modeling framework. Finally, the relationship between perception of cognitive problems and quality of life, controlling for PTSSs, was assessed with a hierarchical regression. All analyses were conducted using Stata Version 14.0 (StataCorp, 2015).

### Results

Of the 268 participants, 20 (0.37%) had one item missing on the PCL, and six (2.24%) had one item missing on the CSQR. Person-mean imputation was used to prorate their average scores on completed items to the full scale because of the low proportion of missing data. Table 2 shows Spearman correlations and descriptive statistics for study variables. There were large associations between each of the predictors; however, tolerance statistics ($>.41$) suggested that multicollinearity was not a problem. The mean PCL-5 score for this sample was 31.57; the National Center for PTSD suggests a cut-point of 33 indicates probable PTSD diagnosis, indicating that this sample exhibits significant PTSD symptom severity (Bovin et al., 2015).

The overall model for the first hypothesis was significant, $F(3, 262) = 35.26, p < .001$, and accounted for 28.6% of the variance in perception of cognitive problems. PTSSs and negative posttraumatic cognitions independently predicted perception of cognitive problems ($\beta = .377, p < .001; \beta = .319, p < .001$, respectively), and the interaction between PTSSs and posttraumatic cognitions was significant ($\beta = -.252, p = .001$). To elucidate the nature of the interaction, the slopes were tested at the 10th, 25th, 50th, 75th, and 95th percentiles of cognitions. These post hoc analyses revealed a strong association between PTSSs and perception of cognitive problems at very low levels of negative cognitions (i.e., 10th percentile; $b = .402, p < .001$). This association attenuates at low levels of negative cognitions.

### Table 2

**Spearman Correlations and Descriptive Statistics for Sample**

<table>
<thead>
<tr>
<th>Variable</th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>5</th>
<th>M</th>
<th>SD</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. PCL-5</td>
<td>.68</td>
<td>.59</td>
<td>.51</td>
<td>.46</td>
<td>.31</td>
<td>31.57</td>
<td>13.63</td>
</tr>
<tr>
<td>2. PTCI</td>
<td>-.68</td>
<td>.51</td>
<td>.61</td>
<td>.46</td>
<td>.31</td>
<td>88.14</td>
<td>40.79</td>
</tr>
<tr>
<td>3. CSE-T</td>
<td>-.55</td>
<td>.51</td>
<td>.51</td>
<td>.46</td>
<td>.31</td>
<td>37.38</td>
<td>9.39</td>
</tr>
<tr>
<td>4. CSQR-Cog</td>
<td>.31</td>
<td>.51</td>
<td>.51</td>
<td>.46</td>
<td>.31</td>
<td>22.69</td>
<td>8.41</td>
</tr>
<tr>
<td>5. QOL-Tot</td>
<td>.56</td>
<td>.51</td>
<td>.51</td>
<td>.46</td>
<td>.31</td>
<td>48.19</td>
<td>17.40</td>
</tr>
</tbody>
</table>

*Note.* All correlations significant at $p < .001$. PCL-5 = PTSD Checklist for DSM-5; PTCI = Posttraumatic Cognitions Inventory; CSE = Trauma Coping Self-Efficacy Scale; CSQR-Cog = Cognitive Self-Report Questionnaire, Cognitions subscale; QOL-Tot = Quality of Life Scale Total Score.
posttraumatic cognitions increase, with significant yet weaker associations at the 50th (b = .23, p < .001) and 75th percentile (b = .14, p < .001), but nonsignificant at the 90th percentile (b = .06, p = .18), suggesting that individuals with very high negative posttraumatic cognitions have high perceptions of cognitive problems regardless of their PTSSs (see Figure 1).

The mediation model proposed for the second hypothesis revealed a significant indirect effect of PTSSs on perception of cognitive problems through trauma CSE (b = .125, 95% bias-corrected and accelerated [BCa] CI [.088, .172]; see Figure 2). The effect size of $\kappa = .203$ indicates that a moderate to large amount of the relationship between PTSSs and perception of cognitive problems occurs through trauma CSE.

Moderated mediation was then implemented to examine whether the indirect effects of trauma CSE were dependent on negative posttraumatic cognitions, similarly tested at the 10th, 25th, 50th, 75th, and 90th percentiles. As noted, the initial test of moderation accounted for 28.6% of the variance in perception of cognitive problems: The added indirect effect of CSE contributed significantly to model fit, $\chi^2(4) = 184.99, p < .001$, and added an additional 6% of variance to the model over and above the initial test of moderation. Information regarding total and direct effects of the moderation analysis can be found in Table 3. Specifically, once taking the indirect effect of CSE into consideration, PTSSs and the interaction between posttraumatic cognitions and PTSSs remain statistically significant, but the independent effect of posttraumatic cognitions no longer held a significant direct effect. In terms of testing for moderated mediation, significant indirect effects were present at low (i.e., 10th percentile; $\alpha_2 = .09$, 95% bias-corrected [BC] CI [.03, .18]) to average (i.e., 50th percentile; $\alpha_2 = .05$, 95% BC CI [.02, .09]), but were nonsignificant at high (i.e., 75th percentile; $\alpha_2 = .02$, 95% BC CI [−.004, .058]) levels. Finally, tests of invariance across trauma types indicated that slopes and intercepts across groups were equal, Wald $\chi^2(3) = 3.08, p = .38$, suggesting that these results were not biased or attenuated due to different trauma types in the sample.

We conducted a hierarchical regression to test the relationship between perception of cognitive problems and quality of life, after controlling for the influence of PTSSs. PTSSs accounted for 16% of the variance in quality of life ($\beta = .35, t = 4.48, p < .001$), and perception of cognitive problems accounted for 22.5% of the variance, after controlling for PTSSs ($\beta = .59, t = 4.57, p < .001$).

**Discussion**

This study explored psychological influences on the relationship between PTSD symptomatology and perception of cognitive problems. Although PTSD is associated with objectively measured mild neuropsychological deficits (Scott et al., 2015), individuals with PTSD may perceive their cognitive difficulties to be worse than what their actual performance demonstrates (Binder et al., 1999; Samuelson et al., 2016). In a large online sample of trauma survivors, negative posttraumatic cognitions about the self and world moderated the relationship between PTSSs and perception of cognitive problems. Specifically, in participants with low levels of negative posttraumatic cognitions, low PTSS levels were associated with lower perception of cognitive problems and high PTSS levels were associated with more self-perceived cognitive problems. However, when negative posttraumatic cognitions were high, perception of cognitive problems was high regardless of PTSS level. For these trauma survivors, there appears to be a perception of memory and attention problems that is not accounted for by PTSSs.

We also found that trauma CSE mediated the relationship between PTSSs and perception of cognitive problems. As hypothesized, there remained a direct effect of PTSSs, but also a signifi-

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**Table 3**

| Variable | $b$ | $z$ | $p > |z|$ | 95% CI          |
|----------|-----|-----|----------|----------------|
| **Total effects** |     |     |          |                |
| PCL      | .23 | 4.66| <.001    | [.13, .33]     |
| PTCI     | .07 | 4.57| <.001    | [.04, .09]     |
| PCL × PTCI | −.003 | −3.83| <.001    | [−.004, −.002] |
| **Direct effects** |     |     |          |                |
| PCL      | .19 | 3.84| <.001    | [.09, .28]     |
| PTCI     | .03 | 1.65| .099     | [−.00, .06]    |
| PCL × PTCI | −.002 | −2.87| .004     | [−.004, −.001] |

**Note.** CI = confidence interval; PCL = PTSD Checklist for DSM-5; PTCI = Postraumatic Cognitions Inventory.
cant indirect effect of trauma CSE, indicating that trauma CSE partially accounts for the effect of PTSSs on perception of cognitive problems. Finally, there was evidence of moderated mediation, such that trauma CSE was a mediator only when posttraumatic cognitions were low or average. In other words, when negative posttraumatic cognitions are pronounced, positive CSE will not exert a buffering effect on perception of cognitive problems. According to Bandura (1997), the most influential way to build self-efficacy is through mastery experiences, which involve the acquisition of cognitive, behavioral, and self-regulatory skills to manage life experiences. One’s appraisal of capability to perform — not the performance itself — changes perceived self-efficacy. Moreover, how people evaluate their self-efficacy is contingent upon their self-schemas, which affect how they interpret and organize information, what they retrieve from memory, and overall construction of efficacy judgments. It would follow that trauma survivors with strong negative posttraumatic appraisals, particularly about the self, are not able to acquire positive mastery experiences because even when they are successful, they attribute it to random external factors rather than to internal factors.

Our results indicate a strong influence of appraisals—both about the traumatic event and one’s ability to cope with posttraumatic stress demands—on the perception of cognitive problems in individuals who have endured trauma. Trauma-exposed individuals often complain to clinicians and health providers of cognitive complaints, and indeed, there appears to be a neurobiological influence of PTSD on the brain and subsequent neuropsychological functioning (Sherin & Nemeroff, 2011). However, these impairments tend to be mild and subtle, and researchers caution that they should be considered differences in performance compared with controls as opposed to deficits (Samuelson, 2011). We found that perception of cognitive problems predicted poorer quality of life, accounting for 22.5% of the variance, even after controlling for PTSSs. In a prior study, we also found perception of cognitive problems to be related to self-report of social and emotional functioning difficulties in veterans with PTSD, whereas actual objective neurocognitive performance was not (Samuelson et al., 2016). Those findings would suggest that the perception of cognitive problems, even in the absence of actual neurocognitive impairment, influences psychosocial outcomes.

Health care providers frequently struggle with interpreting patients’ self-report of cognitive complaints. Although self-report is a necessary part of the assessment process, it can also be subject to bias and inconsistencies. Patients with PTSD may also be aware of the potential impact of their diagnosis on the brain and neurocognitive functioning, and can be more sensitive to perceived changes or deficiencies. However, our findings show that even when PTSSs are relatively low (and, presumably, should not be impacting neurocognitive functioning), when negative posttraumatic appraisals are high, cognitive complaints increase. Although it is unlikely that individuals with low PTSD symptoms will seek treatment for PTSD specifically, it is possible that they will seek intervention for symptoms other than PTSD, including cognitive deficits that they believe may have stemmed from their traumatic event, or difficulties with work or relationships related to their perception of impairment. Moreover, in some trauma survivors, even in the absence of a PTSD diagnosis or significant PTSSs, there appears to be a cognitive style typified by appraisals of the self as damaged and incompetent. As perception of cognitive problems was related to poorer perceived quality of life, over and above the influence of PTSSs, these findings indicate that individuals with this cognitive style struggle with functional impairments. A primary target for intervention when clients with trauma or PTSD report cognitive complaints may be to address negative cognitions and self-efficacy rather than cognitive rehabilitation.

Several limitations of the study should be noted. First, the data are cross-sectional and limit any conclusions about causal relationships. Longitudinal methods can help tease out the interplay of variables over time and can provide more causal and directional interpretations. Second, participants were asked to answer questions regarding the worst traumatic event in their lifetime, but we did not solicit information around timing of that event. As the trajectories of PTSSs, appraisals, and CSE may change and fluctuate during the course of one’s posttrauma life, this lack of information is a limitation that should be addressed in future research. Third, the majority of participants were White (80%), under the age of 50 (89.4%), identified as either male or female (98.9%), and had experienced accidents as their trauma (43.7%), which limits the generalizability of findings. Fourth, a number of variables could have been included in the model to better clarify the nature of these relationships, including known protective influences posttrauma, such as social support, as well as variables that would help elucidate the CSE findings, such as locus of control or emotion regulation. Finally, assessment was limited to self-report questionnaires; future research could be extended to examine whether appraisals influence not only the perception of cognitive problems in persons with PTSD but also objective neurocognitive performance.

References


PTSD AND PERCEPTION OF COGNITIVE PROBLEMS


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