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Posttraumatic Stress and Emotion Recognition

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Abstract

People with PTSD have problems with interpersonal relationships, but the maintaining mechanisms are not well studied. One potential mechanism relating PTSD and interpersonal difficulties is an inability for people with PTSD to recognize another's emotion, preventing them from taking their perspective or reacting empathetically. This study aimed to experimentally test the effects of trauma cue exposure on participants with subthreshold PTSD's accuracy in identifying emotions depicted by peoples' eyes. Participants were randomly assigned to either the control (i.e., neutral script) or experimental condition (i.e., traumatic event script) prior to completing the "Reading the Mind in the Eyes" task to measure emotion recognition accuracy. An analysis of variance (ANOVA) was conducted to examine the effects of traumatic event script presentation on participants' accuracy in identifying emotions depicted by peoples' eyes. Contrary to our hypothesis that individuals assigned to the experimental condition would demonstrate lesser accuracy in identifying emotions, there was not a significant difference between the experimental (M = 26.45; SD = 3.59) and control [M = 25.64; SD = 5.63; $F(21)$ = .165, p = .689, d = 0.17] conditions in terms of scores on the "Reading the Mind in the Eyes" task.

Posttraumatic Stress and Emotion Recognition

Posttraumatic stress disorder (PTSD) is a chronic and disabling disorder that is diagnosed after a person fails to recover from the stress elicited by a threatening event (American Psychiatric Association [APA], 2013; Kessler, 2000; Kessler, Sonnega, Bromet, Hughes, & Nelson, 1995). A significant number people will encounter a traumatic event in their lifetime (i.e., 60.7% of men and 51.2% of women in the U.S. National Comorbidity Survey; Kessler et al., 1995). However, the majority of these individuals will experience a natural remission of symptoms following the event. Estimates suggest approximately 6.8% of people in the United States meet criteria for PTSD at some point during their lifetime (Kessler et al., 2004). One particularly important correlate of PTSD is interpersonal violence (Barrett, Teesson, & Mills, 2014). For example, research has repeatedly documented that people with PTSD are at particular risk for engaging in physical and psychological intimate partner violence (e.g., Monson, Taft, & Fredman, 2009; La Motte, Taft, Reardon, & Miller, 2014; Kar & O'Leary, 2013). Although links between PTSD and interpersonal violence are well documented, little research has examined possible maintaining mechanisms.

Both full PTSD and subthreshold PTSD (defined as experiencing a criterion A trauma and at least 1 symptom in each of the symptom clusters) have been linked to enhanced emotional reactivity and difficulties regulating emotions (Bonn-Miller, Vujanovic, Boden, & Gross, 2011; Gross, 2007). In particular, when exposed to traumatic event cues, people with at least subthreshold PTSD evidence elevated and prolonged emotional reactions compared to people who have been exposed to a traumatic event but do not meet criteria for subthreshold or full PTSD (Orr & Roth, 2000). This sort of

emotional hyper-reactivity likely impacts an individual's ability to identify and react adaptively to another's emotional experience. Specifically, the dysregulated emotional reaction to a traumatic event reminder is likely to capture the attentional resources necessary for perceiving and reacting to another's emotional experience. To respond effectively to another person's emotional experience, the other person's emotions should first be recognized from his or her affective cues (Blair, 2005). After identifying the other person's emotions, the person trying to respond empathetically then should take the perspective of that individual before they can then make the appropriate emotional response, which are essential for successful social interactions (Cassels & Birch, 2014). As such, this is why failure to recognize other individual's emotions may be a maintaining mechanism for interpersonal problems for people with at least subthreshold PTSD due to posttraumatic stress-related interference preventing them from taking others' perspectives and responding empathetically.

The few relevant preliminary studies conducted to date have observed that participants with PTSD were less able to recognize complex mental states than healthy controls (Nazarov et al., 2013; Schmidt & Zachariae, 2009). However, neither study focused on the role of traumatic event-related emotional reactivity. As such, these studies are unable to speak to the role of posttraumatic stress-related emotional reactivity relative to pre-traumatic event individual differences in this ability. The current study proposes to fill this important gap in the literature by comparing the effects of traumatic event cue versus neutral script exposure on emotion recognition ability for people who have experienced a traumatic event and show at least subthreshold levels of PTSD symptoms. Specifically, the following hypothesis will be tested: people with at least subthreshold

PTSD will evidence lower levels of emotion recognition accuracy after encountering reminders of a traumatic event compared to those who are presented a neutral script. These results would be important for advancing our currently limited understanding of why people with PTSD experience interpersonal problems by highlighting the effects of traumatic event cue-exposure on emotion recognition as a possible mechanism. Importantly, these findings also will advance efforts to reduce PTSD-related interpersonal difficulties by pointing to emotion recognition and perspective taking as targets for treatment.

Method

Participants

There were a total of 22 adult participants enrolled. Participants were recruited from both the Introduction to Psychology course at the University of Arkansas as well as the local community. To be eligible for the study, participants had to be at least 18 years old and have experienced a traumatic event as defined by the DSM-5 (i.e., characterized by perceived threat to self or others; APA, 2013). Moreover, all participants met at least subthreshold PTSD. There is not a consensus on the definition of subthreshold PTSD in the literature for the DSM-IV or the newer DSM-5 (Friedman, 2013). In this study, subthreshold PTSD was defined as reporting at least 1 symptom in each of the symptom clusters for PTSD, consistent with prior work from the DSM-IV (McLaughlin et al., 2015; Breslau, Lucia, & Davis, 2004; Favaro, Tenconi, Colombo, & Santonastaso, 2006; Dickstein, Walter, Schumm, & Chard, 2013). The DSM-5 PTSD clusters are intrusion symptoms (e.g., spontaneous or recurrent memories, dreams, or flashbacks), avoidance (e.g., avoiding memories, thoughts, or physical reminders of the traumatic event),

negative alterations in cognition and mood (e.g., having negative thoughts or beliefs about themselves, others, or the world; disinterest in activities, and inability to remember important details about the traumatic event), and alterations in arousal and reactivity (hypervigilance, behaving aggressively or self-destructively, and sleep disturbances).

Participants ranged in age from 18 to 55 (M = 28.77, SD = 12.50) with a majority of the participants being female (n = 17). Identified target traumas were as follows: 13.6% (n = 3) were transportation accidents, 31.8% (n = 7) were sexual assaults, 40.9% (n = 9) were unexpected injury or death of another person, and 13.6% (n = 3) were identified as another trauma. In terms of racial and ethnic makeup, 90.9% (n = 20) of participants identified themselves as non-Hispanic, 81.8% (n = 18) of participant self-identified as white, 9.1% (n = 2) identified as multi-racial, 4.5% (n = 1) identified as Asian, and 4.5% (n = 1) identified as American Indian/Alaskan Native. Most participants had at least some college education, with 59.1% (n = 13) having completed some college education; 13.6% (n = 3) had completed some graduate/professional school, 9.1% (n = 2) graduated from a 2 year college, 9.1% (n = 2) completed graduate/professional school, 4.5% (n = 1) graduated from a 4 year college, and 4.5% (n = 1) graduated from high school or high school equivalent. Over half of the participants, 59.1% (n = 13), were single; 31.8% (n = 7) were married, 4.5% (n = 1) were divorced, 4.5% (n = 1) were divorced, but cohabitating.

Participants were excluded from the study if they endorsed current mania, suicidal intent, or psychotic symptoms. All participants (including those found to be ineligible during the in-laboratory screening) were provided referral information for local mental health resources and compensated for their participation.

Measures

Life Events Checklist for DSM-5. Once participants came in to the lab, we further determined their eligibility for the study by administering the Life Events Checklist for DSM-5 (LEC-5; Weathers, Blake, Schnurr, Kaloupek, Marx, & Keane, 2013b). This self-report measure is used to index exposure to a criterion A trauma and evaluates the different types of traumas participants have experienced and how the event was experienced. The LEC-5 asks participants about 17 trauma types and participants mark whether the event happened to them, they witnessed it, learned about it, it was part of their job, they are not sure if they have encountered this kind of event, or this event does not apply. Participants also briefly described the most distressing event, how long ago the event occurred, whether the trauma involved someone's life being in danger or sexual violence, and if the event occurred multiple times. The psychometrics for the LEC-5 are not available yet as the measure was recently made available for use; however, the LEC used in accordance with the DSM-IV had reasonably stable test-retest reliability for both the item and total scale level (mean kappa for all 17 items on the original LEC was .61) and the retest correlation for this measure was $r = .82$, $p < .001$ (Gray, Litz, Hsu, & Lombardo, 2004). The average of the kappas for each similar item between the LEC and Traumatic Life Events Questionnaire (TLEQ; Kubany et al., 2000) was .55 and the total scale correlation between the LEC and TLEQ was $r = -.55$, $p < .001$.

PTSD Checklist for DSM-5. The final measure used to evaluate inclusion criteria for PTSD symptom severity was indexed using the PTSD Checklist for DSM-5 (PCL-5; Weathers, Litz, Palmieri, Marx, & Schnurr, 2013c). This 20-question self-report measure is used to assess PTSD symptom levels. The PCL-5 has five questions devoted

to assessing re-experiencing symptom severity, two questions evaluating avoidance, seven questions devoted to negative cognition and mood, and six questions gauging arousal. Scores range from zero to 80, with 38 being the current cut-off score for until further psychometric work becomes available with this measure developed for DSM-5 (Weathers et al., 2013c). The PCL for DSM-IV as a whole correlated well with the CAPS (Clinician-Administered PTSD Scale for DSM-5; Weathers et al., 2013a; .929), the gold-standard for PTSD assessment. Additionally, the diagnostic efficiency for the PCL was .900 when compared to the interview-administered CAPS. Diagnostic efficiencies for individual items of the PCL for the DSM-IV as a whole were at least .700 for PTSD symptoms also measured by the CAPS.

Toronto Empathy Questionnaire. To prevent potential confounding that participants' trait empathy could have more of an effect on emotion recognition accuracy than the trauma cues from the script presentation, we administered the Toronto Empathy Questionnaire to index baseline self-reported empathy levels (TEQ; Spreng, McKinnon, Mar, & Levine, 2009). The TEQ is a 16-item self-report measure that assesses trait-based empathy. The answers are on a Likert scale that range from never to always, so scores range from 0 to 64. When the TEQ was created, the authors tested it in two additional studies. In these two studies as part of the same article, it had good internal consistency (Cronbach's α = .85-.87). The TEQ also correlated positively with the Interpersonal Reactivity Index's (IRI; Davis, 1983) subscales of Empathic Concern, $r = .74$, $p < .001$; Perspective Taking, $r = .29$, $p < .01$; and Fantasy, $r = .52$, $p < .001$. Additionally, the TEQ correlated positively with the Empathy Quotient (Baron-Cohen & Wheelwright,

2004), $r = .80$, $p < .001$. Finally, the TEQ demonstrated high test–retest reliability, $r = .81$,$p < .001$.

Emotion Subjective Units of Distress Ratings. This measure uses visual analog scales (VAS) to assess on a scale from 0 to 100 participants emotional symptoms. Participants use the Emotion Subjective Units of Distress Ratings (SUDS; Wolpe, 1969) to self-report their anxiety, sadness, happiness, anger, surprise, disgust, fear, shame, guilt. Because the SUDS was administered electronically for this procedure, participants moved a slider to demarcate their symptom level between 0 (not at all) to 100 (extremely). Kaplan and colleagues (1995) found that self-reported SUDS moderately correlated with State-Trait Anxiety Inventory (STAI; Spielberger, Gorsuch, & Lushene, 1970) and Multiple Affect Adjective Check List (MAACL; Zuckerman & Lubin, 1965), but, according to Anastasi (1988 as cited in Kaplan et al., 1995), the discriminant validity of the SUDS has yet to be supported by evidence and thus preventing researchers from being confident that there is sufficient construct validity.

Reading the Mind in the Eyes. The "Reading the Mind in the Eyes" task (Baron-Cohen, Wheelwright, Hill, Raste, & Plumb, 2001a) was used to measure one aspect of perspective taking by determining accuracy in identifying emotions. This task consists of identifying the emotion associated with 36 standardized sets of human eyes presented via a computer-based slide show. There are four emotion answer choices for each question, with one correct option and three incorrect choices (i.e., participants must select one answer from jealous, panicked, arrogant, or hateful for the practice question). Each correctly identified emotion is score as a "1," with total scores (ranging from 0 to 36) yielding a total score. When correlated with Autism Spectrum Quotient scores (AQ;

Baron-Cohen Wheelwright, Skinner, Martin, & Chubley, 2001b), the "Reading the Mind in the Eyes" scores were inversely correlated (r = -.53, p = .044), because those with higher autism symptoms should have more difficulty recognizing others' emotions. In a sample of individuals who do not fall on the autism spectrum tested during the measures creation, the task was inversely correlated with the social skills category (r = .27, p = .015) and the communication category (r = .25, p = .027) (Baron- Cohen et al, 2001a). When Handford and colleagues (2013) looked at another sample of individuals who are not on the autism spectrum, they scored on average as well as the initially tested population (M = 25.6 for the second sample and M = 26.2 for the original sample) on the standard version of this test. The Spanish version of the "Reading the Mind in the Eyes" task was found to be reliable for nonclinical populations over one-year with an initial average score of 27.18 (SD = 3.59) and an average score of 27.24 (SD= 3.67) on the retest one year later (Fernandez-Abascal, Cabello, Fernandez-Berrocal, Baron-Cohen, 2013). Another study using the Italian version of the measure found good internal consistency (Cronbach's alpha = .605), that test-retest reliability for the "Reading the Mind in the Eyes" test one month later was .833, and that those who scored lower than other participants on the task also scored low on the Empathy Quotient (EQ; Baron-Cohen & Wheelwright, 2004) (p < .05), supporting the validity of the task (Vellante, Baron-Cohen, Melis, Marrone, Petretto, Masala, & Preti, 2013).

Procedure

The procedures were approved by the University of Arkansas's Institutional Review Board. Potential participants were invited to take part in a phone screen as a preliminary gauge of eligibility. Those eligible based on the phone screen, were invited to

come in to the laboratory to participate in the study. Upon arriving to the laboratory, participants provided written informed consent before completing further eligibility assessments. Participants who were determined to be eligible for this study then worked on developing scripts, described in more detail below, before completing a battery of questionnaires. After the participant completed the questionnaires, they were guided through the script-driven imagery procedure and emotion recognition task. The participants then watched a 5-minute positive video before being debriefed and compensated for their participation.

Script Development. Participants worked with researchers to create 60-second scripts that were tailored to the individual based on standard procedures (e.g., Pitman, Orr, Forgue, de Jong, & Claiborn, 1987; Weinstein, Lingford-Hughes, Martinez-Raga, & Marshall, 1998). Each participant created two scripts: one neutral and one traumatic event. Participants were asked to write a brief account of each of these types of situations and fill out a physiological checklist rating how strongly they experienced each sensation (e.g., ears ringing, tearing up/crying, heart pounds, even breathing, feel relaxed all over) for each. The individual statements and physiological sensations were included in the scripts because including both stimuli and responses together maximizes reactivity to script-driven imagery (e.g., Lang, Kozak, Miller, Levin, & McLean, 1980). Neutral scripts typically describe a mundane task for their neutral script; for example, doing laundry, buying groceries, or getting ready in the morning. For their traumatic event script, participants wrote about their own stressful life experience that was identified on the LEC-5 (Weathers et al., 2013b). The researcher then created 2 separate 60-second audio recordings based on each of these events that were employed to elicit neutral and

traumatic event-related imagery. Following script development and recording, participants were randomly assigned to either the traumatic event or neutral script condition which determined which script they heard during the script presentation.

Script Presentation. Participants had a 5-minute baseline period before completing SUDS to provide information on their baseline affect symptoms. Script presentation was then conducted as follows: one of the 60-second scripts, followed by a 30-second rehearsal period in which participants were instructed to continue imagining the imagery elicited by the script as vividly as possible. After this rehearsal period, participants then completed the SUDS again to assess post-script emotional symptoms provoked by the script imagery before being administered the "Reading the Mind in the Eyes" task (Baron-Cohen et al., 2001a).

Results

Descriptive Data and Zero-Order Relations

Descriptive analyses and an analysis of variance (ANOVA) were used to calculate the mean number of DSM-V criterion A traumatic event types that participants endorsed. The mean number of criterion A traumatic events endorsed by both groups was 5.82 (*SD* = 2.48), with no significant difference between the neutral script condition (*M* = 5.91, *SD* = 2.77) and the trauma script condition [*M* = 5.73, *SD* = 2.28; *F*(21) = .028, *p* = .868, *d* = .07]. Approximately 72.72% (*n* = 16) of participants met criteria for PTSD using the PCL-5 cut off scores for civilians (i.e., 38; Weathers et al., 2013c). An analysis of variance (ANOVA) comparing PTSD symptoms between the neutral and trauma conditions revealed no significant difference in PCL-5 scores [*M* = 42.64 (*SD* = 12.14) versus *M* =

47.82 (*SD* = 13.83), respectively; *F*(21) = .872, *p* = .361, *d* = 0.40]. Table 1 shows the descriptive data by condition to show no significant differences between conditions.

Table 2 shows correlational data for PCL, TEQ, anxiety SUDS, and Reading the Mind in the Eyes scores. There was a significant correlation ($p < .01$) for the subscales of the PCL-5 and PCL-5 total score. Additionally, there was a significant ($p < .01$) and positive correlation (.551) between TEQ score and criterion B PTSD symptoms (i.e., re-experiencing) suggesting that as re-experiencing a traumatic event increases, so too does empathy. Finally, there was a significant ($p < .05$) and positive correlation (.462) between PCL measures hypervigilance and anxiety SUDS.

Primary Hypothesis Test

An ANOVA was conducted to test the primary hypothesis that individuals with at least subthreshold PTSD randomly assigned to the experimental condition where they encountered personalized traumatic event reminders would demonstrate lesser accuracy in correctly identifying an emotion displayed in the computer task than participants exposed to a personalized neutral event script. Analyses suggested that participants who heard a neutral script did not have significantly elevated scores on the task (*M* = 25.64; *SD* = 5.63) as compared to those that listened to their trauma script before completing the task [*M* = 26.45; *SD* = 3.59; *F*(21) = .165, *p* = .689, *d* = 0.17].

Secondary Analysis

We did not find a significant group difference in baseline anxiety as measured by SUDS (*M* = 27.75, *SD* = 27.54 for the neutral condition and *M* = 16.57, *SD* = 16.44 for the traumatic script condition). A repeated measures ANOVA with the sphericity assumed was conducted to compare the effect of script condition on self-reported anxiety

before and after script presentation. There was a significant effect of script condition [$F(1,13) = 4.81$, $p = .047$, $\eta^2 = .270$] and because the significance is less than .05, the means of the groups are significantly different ($M = 22.16$, $SD = 5.97$ for factor 1 and $M = 35.64$, $SD = 7.21$ for factor 2). It appears the trauma script elicited anxiety. Despite the trauma script condition eliciting anxiety, there still was not an evident effect between script conditions and emotion recognition accuracy. There was a main effect of time using two cells (e.g., pre-script presentation anxiety and post-script presentation anxiety), suggesting that anxiety was impacted by hearing a script for both conditions. When using the repeated measures ANOVA with the sphericity assumed, to look at four cells (e.g., neutral script condition versus traumatic script condition at pre-script and post-script presentation), $F(1, 13) = 8.79$, $p < .05$, $\eta^2 = .403$. There was no main effect for time for the neutral script condition; but, for the traumatic event script condition, there was an effect (see figure 1).

Discussion

This study experimentally tested the effect of traumatic event cue exposure on emotion recognition ability among individuals meeting criteria for at least subthreshold PTSD. Participants were randomly assigned to either the experimental (i.e., trauma script) or the control (i.e., neutral script) condition where they were presented a 60-second script of a personalized neutral or traumatic experience. All participants then completed the "Reading the Mind in the Eyes" task (Baron-Cohen et al., 2001a) to determine the participants' ability to recognize the emotions depicted in 36 sets of eyes.

There was not a significant difference between the experimental and control conditions in this study in terms of scores on the "Reading the Mind in the Eyes" task.

This suggests being exposed to trauma cues does not significantly affect the ability of a person with subthreshold PTSD to identify emotions on the face of another person by looking at their eyes. Given evidence that the "Reading the Mind in the Eyes" task correlates with perspective taking (Carey & Cassels, 2013; Cassels & Birch, 2014), the current results may suggest traumatic event cue exposure does not influence a person's ability to recognize another's emotions or take their perspective. It also was observed that there were not significant correlations between the subscales of the PCL or the total score of the PCL with scores on the "Reading the Mind in the Eyes" task. This suggests higher self-reported PTSD symptom levels do not relate to one's ability to recognize another's emotions.

Interestingly, the TEQ was not significantly correlated with scores on the "Reading the Mind in the Eyes" task. Given the latter was conceptualized as a measure of emotion recognition (Baron-Cohen et al., 2001a), which is an aspect of cognitive empathy (Cassels & Birch, 2014), the current results suggest relatively low convergent validity of the "Reading the Mind in the Eyes" task in the current study. However, when the TEQ was created, it was tested with the "Reading the Mind in the Eyes" task using it as a behavioral measure of social comprehension and they correlated together with r = .35 and $p < .01$ (Spreng et al., 2009). This further suggests that research should continue being conducted on PTSD and different aspects of empathy as a whole, such as affective and cognitive empathy, to potentially explain these results.

However, given the relative paucity of research in this area, it is possible that there is not a relation between empathy and overall PTSD severity or symptoms. It also is possible this null effect is due to limited statistical power (due to the small sample size)

or using eyes to portray emotions in another person. Future studies should also use a non-eye based task for the experimental task, such as vignettes, the "Reading the Mind in the Face" task (Baron-Cohen et al., 1996), "Reading the Mind in Films" task (Golan, Baron-Cohen, Hill, & Golan, 2006), or having the participant interact with a confederate, friend, or significant other so they can evaluate a real person's emotions. These tasks may lend themselves to being more externally valid than the "Reading the Mind in the Eyes" task.

In addition to the limitations mentioned above, there are other limitations that affect interpretation of the results of this study. For example, internal validity was lowered by the small sample size and the method decision to sample people with at least subthreshold PTSD rather than full DSM-5-defined PTSD. Additionally, there was a reliance on self-report questionnaires rather than using gold-standard clinical interviews, such as the CAPS (Weathers et al., 2013a) for assessing PTSD severity. Using other measures of emotion recognition, such as the previously suggested tasks, would increase confidence that traumatic event cue exposure is not related to emotion recognition. In addition, the effects of the trauma cue exposure may have worn off by the time participants completed the emotion recognition task. Although we attempted to minimize the amount of time between script presentation and the "Reading the Mind in the Eyes" task, it is possible there were no group differences in scores on the task because of a decay in the effects of the trauma cue exposure. Future studies should attempt to further reduce the decay in the effects of the trauma cue exposure method.

In terms of limitations to the external validity of the study, one concern is that this study was completed in a laboratory setting where participants knew that they would potentially encounter reminders of their traumatic experience and that the study's purpose

was to learn more about the interaction between PTSD and ability to recognize another's emotions. These factors may have increased anxiety across participants, regardless of the condition they were randomly assigned to, thereby masking the effects of traumatic event cue exposure. Also, as previously mentioned, participants were shown pictures of eyes, which can be contrasted to naturalistic situations where people can use nonverbal cues to inform their decision of what emotion the person they are interacting with is experiencing. Having these cues to help identify another's emotions is important because without being able to recognize the other individual's emotions, it is difficult to take their perspective and be empathetic towards them.

Although we did not observe an effect of trauma-cue exposure on emotion recognition ability in our sample of people with at least subthreshold PTSD, there may be benefit to continuing research in this area. Research that addresses the limitations of the current study may help elucidate mechanisms that maintain the common co-occurrence of low social support and PTSD, which holds promise for improving treatments for people with PTSD.

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Table 1

Descriptive Data

	Neutral Condition (n = 11)		Trauma Condition (n = 11)		Total (n = 22)	
	Frequency	Percentage (%)	Frequency	Percentage (%)	Frequency	Percentage (%)
Age						
18-24	5	45.45	6	54.55	11	50.00
25-55	6	54.55	5	45.45	11	50.00
Gender						
Female	7	63.64	10	90.91	17	77.27
Male	4	36.36	1	9.09	5	22.73
Race						
Non-Hispanic	11	100.00	9	81.82	20	90.91
Hispanic	0	0.00	2	18.18	2	9.09
Ethnicity						
Caucasian/White	10	90.91	8	72.73	18	81.82
Multi-Racial	0	0.00	2	18.18	2	9.09
Asian	0	0.00	1	9.09	1	4.55
American Indian/Alaskan Native	1	9.09	0	0.00	1	4.55
Education						
Have not completed college	6	54.55	8	72.73	14	63.64
Graduated 2 or 4 year college	3	27.27	0	0.00	3	13.64
Some or completed graduate/professional school	2	18.18	3	27.27	5	22.73
Marital Status						
Single	5	45.45	8	72.73	13	59.09
Married	6	54.55	1	9.09	7	31.82
Divorced	0	0.00	2	18.18	2	9.09
Target Trauma Type						
Transportation accident	1	9.09	2	18.18	3	13.64
Sexual assault	2	18.18	5	45.45	7	31.82
Unexpected injury/death of another	6	54.55	3	27.27	9	40.91
Other	2	18.18	1	9.09	3	13.64

Table 2

Descriptive Data and Zero-Order Relations

	M(SD)	1	2	3	4	5	6	7	8
1. PCL Intrusion Symptoms	12.23(3.89)	-	.145	.215	.289	.541**	.551**	.196	.036
2. PCL Avoidance	6.00(1.85)		-	.693**	.271	.624**	.081	.252	-.145
3. PCL Negative Cognitions and Mood	14.09(6.12)			-	.595**	.879**	.095	.346	-.086
4. PCL Arousal and Reactivity	12.91(5.31)				-	.816**	.267	.462*	.031
5. PCL Total	45.23(12.97)					-	.331	.438	-.037
6. TEQ	50.05(7.63)						-	.009	-.255
7. SUDS Anxiety	35.26 (29.37)							-	.264
8. Mind in the Eyes	26.05(4.62)								-

Note. $*p < .05$. $**p < .01$.

Figure 1. Pre- and Post-Script Self-Reported Anxiety as Measured by SUDS for the Neutral and Trauma Script Conditions.