

Lifetime Trauma Exposure Among those with Combat-Related PTSD:

Psychiatric Risk Among U.S. Military Personnel

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Abstract

Research has described the association between lifetime trauma exposure and psychiatric symptoms among various cohorts, but little is known about the effect of lifetime trauma histories on the symptom expression of active-duty military personnel diagnosed with combat-related posttraumatic stress disorder (PTSD). Active-duty soldiers ($N = 162$) were diagnosed with PTSD from deployments to Iraq or Afghanistan using the Clinician Administered PTSD Scale. Soldiers then completed self-report measures of depression, anxiety, and PTSD. Lifetime exposure to categories of trauma types and the intensity of exposure was reported on the Life Events Checklist. The number of categories of trauma that happened to them significantly predicted the severity of depression, anxiety, and PTSD symptoms, as well as a positive screen for likely depression diagnosis based on self-reported symptoms. Direct exposure to trauma explained most of the association, as witnessing trauma and hearing about trauma did not explain symptoms beyond events that happened to participants. Interpersonal traumatic events were not associated with psychiatric functioning after controlling for non-interpersonal traumatic events. Assessment of trauma history among post-9/11 service members and veterans should include the frequency and variety of lifetime trauma exposure, given the association with psychiatric functioning.

Key words: war, combat, posttraumatic stress disorder, depression, anxiety, deployment, active duty

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1. Introduction

Posttraumatic stress disorder (PTSD) is a debilitating psychiatric disorder characterized by re-experiencing traumatic memories, avoidance of distressing memories, thoughts, feelings, or external reminders of the traumatic event, negative cognitions and mood, and increases in arousal (American Psychiatric Association, 2013). The majority of people are exposed to trauma in their lifetime (Kessler, Sonnega, Bromet, Hughes, & Nelson, 1995) and although most recover to baseline functioning without treatment (Riggs, Rothbaum, & Foa, 1995; Rothbaum, Foa, Riggs, Murdock, & Walsh, 1992), a minority do not. The lifetime prevalence of PTSD is estimated at 3.9% worldwide (Koenen et al., 2017) and 6.8% in the U.S. (Kessler et al., 2005). Trauma also increases the risk of other psychiatric disorders (Ozer, Best, Lipsey, & Weiss, 2003; Wang, Shelton, & Dwivedi, 2018), including depression (Mandelli, Petrelli, & Serretti, 2015), and increases the risk of poorer physical health and physical health quality of life (Pacella, Hruska, & Delahanty, 2013). Further, the effects of trauma can be long term; childhood adverse events predict PTSD later in life (Brewin, Andrews, & Valentine, 2000), and childhood trauma increases the risk of depression for adults (Kendler, Kuhn, & Prescott, 2004).

The cumulative impact of lifetime trauma exposure merits special attention. Lifetime exposure to multiple traumatic events is common (Breslau et al., 1998), with rates being significantly higher among military personnel (e.g., Dedert et al., 2009). In addition to the risk of exposure to trauma during military service, military personnel often have a history of pre-military trauma (Rosen & Martin, 1996; Seifert, Polusny, & Murdoch, 2011), which has been found to affect psychiatric functioning (Bremner, Southwick, Johnson, Yehuda, & Charney, 1993; King, King, Foy, & Gudanowski, 1996). Among a large sample of military personnel assessed prior to deployment, 74% reported a prior history of trauma (Bolton, Litz, Britt, Adler, & Roemer, 2001). Similarly, in a study of post 9/11 veterans, participants

reported exposure to an average of 6.3 potentially traumatic events with 88% of the sample reporting pre-military trauma (Dedert et al., 2009). Pre-military trauma is also clinically relevant to psychiatric functioning on active duty. Among never-deployed marines (Agorastos et al., 2014), pre-military trauma demonstrated a dose-dependent relationship, such that those with a greater number of prior trauma types demonstrated increased risk of PTSD, depression, and poorer health-related quality of life. Further, lifetime exposure to a higher diversity of trauma types predicted PTSD among new military recruits (Brownlow et al., 2018).

Accordingly, it is not surprising that the combination of pre-military trauma and the occupational risk of exposure to potentially traumatic events during service places military personnel at unique risk for the development of PTSD and other negative psychiatric outcomes (Hoge et al., 2004; Milliken, Auchterlonie, & Hoge, 2007). Though estimates of PTSD prevalence vary (Ramchand et al., 2010), a recent review suggests a rate of 20 - 26% among those who served in the wars in Iraq and Afghanistan (Fulton et al., 2015). Among post 9/11 veterans, the number of traumatic event exposures has been found to predict risk of current PTSD, major depressive disorder, and substance use disorders (Dedert et al., 2009). Similarly, pre-deployment PTSD and psychological distress have been shown to be related to the development of PTSD among National Guard soldiers deployed to Iraq (Rona et al., 2009). The intensity of PTSD symptoms has also been associated with the number of lifetime traumatic events among a cross-sectional sample of non-clinical active-duty soldiers (Stretch, Knudson, & Durand, 1998).

When considering the association between trauma and psychiatric risk, the nature of the traumatic event is relevant in addition to the number of traumatic exposures. Prior research has repeatedly found that interpersonal trauma is a unique risk factor (Benjet et al., 2016; Shalev et al., 2019; Kessler, Aguilar-Gaxiola et al 2017), a finding that is sustained even in worldwide epidemiological research (Bromet et al., 2017). Similarly, the intensity of traumatic exposure has been found to affect psychiatric outcomes. Among military personnel, combat trauma that involves close contact with the

enemy has been associated with higher rates of PTSD (Rona et al., 2009) compared to those with less intense combat exposure (Hoge & Castro, 2006; Hoge et al., 2004).

Although prior research has described the association between traumatic exposure and psychiatric symptoms among various cohorts of military personnel (Agorastos et al., 2014; Dedert et al., 2009; King et al., 1996), far less is known about the effect of lifetime trauma histories on the symptom expressions of clinical populations of active-duty military personnel. Specifically, we are not aware of prior research on how the lifetime trauma exposure of active-duty military personnel diagnosed with combat-related PTSD is associated with psychiatric outcomes. Given the potential variance in PTSD symptom intensity and co-morbidities among service members with PTSD stemming from deployments to Iraq and Afghanistan, this information is critical to clinical practice. Clinicians working with service members with combat-related PTSD risk an overly narrow clinical focus on deployment-related trauma due to substantial research on combat exposure and PTSD (Hoge et al., 2004; Smith et al., 2008). Thus, clinicians working with active-duty personnel may be susceptible to oversight of lifetime traumatic exposure and its contribution to psychiatric risk.

This study will examine the prevalence of lifetime exposure to potentially traumatic events and its association with PTSD, depression, and anxiety symptoms among a sample of active-duty military personnel diagnosed with PTSD stemming from deployments to Iraq or Afghanistan. We hypothesize that lifetime exposure to more types of trauma will predict greater severity of symptoms of PTSD, depression, and anxiety. Second, we predict that the intensity of trauma exposure will be related to psychiatric functioning such that direct exposure (i.e., events that happened to them) will predict symptoms of PTSD, depression, and anxiety better than events witnessed or events learned about. Finally, we hypothesize that interpersonal trauma will predict PTSD, depression, and anxiety above and beyond non-interpersonal trauma.

2. Method

2.1 Participants

Active-duty U.S. Army soldiers ($N = 162$) were recruited from a military base and were enrolled in a randomized clinical trial comparing prolonged exposure or virtual reality exposure to a wait-list condition in the treatment of PTSD stemming from deployments to Iraq or Afghanistan. Participants were largely male (96%, $n = 156$). The majority were Caucasian (60%, $n = 97$), had some college education (66%, $n = 107$), and were married (64%, $n = 104$). Participants were all diagnosed with PTSD based on the Clinician Administered PTSD Scale (CAPS; Blake et al., 1995), which follows the diagnostic criteria outlined in the Diagnostic and Statistical Manual of Mental Disorders-Fourth Edition-Text Revision (DSM-IV-TR; American Psychiatric Association, 2000). See Reger et al. (2016) for full demographics.

All participants from the parent clinical trial were included in this study. The original study's inclusion criteria required the index trauma be deployment-related. The event had to be a non-sexual assault trauma that occurred at least 3 months prior to the baseline assessment in an environment similar to those available in the Virtual Iraq/Virtual Afghanistan software. Exclusion criteria included: a) change in psychotropic medications in the last 30 days; b) history of organic mental disorder, psychotic disorder, or bipolar disorder; c) hospitalization in the past 6 months for suicidal risk or self-harm; d) an ongoing threatening situation (e.g., domestic violence); e) current drug or alcohol dependence; f) history of seizures; g) prior PE treatment; h) other ongoing psychotherapy for PTSD; i) physical condition interfering with the ability to use a virtual reality head-mounted display or VR peripherals; j) history of a loss of consciousness for a duration of greater than 15 minutes since entering active duty military service.

2.2 Procedures

All data used in the current study were collected at baseline prior to treatment randomization, from June 2009 to November 2013. For a more detailed description of the full study procedures see

Reger et al. (2016). The study was approved by the local institutional review board, written informed consent was obtained.

2.3 Measures

Life Events Checklist (LEC). The LEC was originally designed to support the assessment of potentially traumatic events as part of the CAPS (Blake et al., 1995), which assesses for PTSD according to Diagnostic and Statistical Manual of Mental Disorders, Fourth Edition (DSM-IV; American Psychiatric Association, 2000). The LEC includes 16 categories of potentially traumatic events as well as a 17th option for other very stressful events that may result in PTSD. Participants are asked to indicate whether they have experienced the event and if so, to report the intensity of exposure. In the case of multiple exposures to the same category of trauma with different intensities of exposure, the LEC asks participants to check multiple intensities of exposure for that category. Options for intensity of exposure include a) it happened to them, b) they witnessed the event, c) they learned about it, or d) it doesn't apply. This study counted the number of trauma categories for events that happened to them, that they witnessed, and that they learned about resulting in three different total trauma exposure scores of 0 to 17. This approach is similar to other studies that used checklists to examine the impact of a combination of categories of trauma exposure and number of exposures on mental health (Brownlow, Zitnik, McLean, & Gehrman, 2018). It is noteworthy that a participant report of exposure to an event on the LEC is not independently indicative of a DSM-IV Criterion A event for PTSD, as the LEC does not assess for Criterion A2, the presence of intense fear, helplessness, or horror. The LEC has demonstrated reasonable reliability and validity (Gray, Litz, Hsu, & Lombardo, 2004).

Beck Anxiety Inventory (BAI) (Beck & Steer, 1993). The BAI is a 21-item self-report measure of the severity of anxiety symptoms. Items assess the individual's experience of anxiety symptoms over the past week. Items are rated from 0 to 3 with higher scores indicating greater severity of anxiety symptoms. The measure has demonstrated adequate reliability (Beck, Epstein, Brown, & Steer, 1988). In

the current study, the BAI showed good internal consistency ($\alpha = .89$). For a positive screen for anxiety, this study used the moderate anxiety cut point of 16 or higher (Beck & Steer, 1993).

Beck Depression Inventory-II (BDI-II; Beck, Steer, & Brown, 1996). The BDI-II is a 21-item self-report measure of the severity of depressive symptoms. Items assess the individual's experience of depressive symptoms over the past 2-weeks. Items are rated from 0 to 3 with higher scores indicating greater severity of depressive symptoms. The measure has demonstrated good reliability (Beck, Steer, & Carbin, 1988), and validity (Foa, Riggs, Dancu, & Rothbaum, 1993). In the current study, the BDI-II showed good internal consistency ($\alpha = .89$). Consistent with the score for moderate depression (Beck, Steer, & Brown, 1996), this study used a score of 20 or higher as a positive screen for depression.

PTSD Checklist, Civilian Version (PCL; Weathers, Litz, Herman, Huska, & Keane, 1993, October). The PCL is a 17-item self-report measure of PTSD symptom intensity that was developed to assess DSM-IV (American Psychiatric Association, 1994) criteria for PTSD. Items assess the individual's experience of PTSD symptoms over the past month. Items are rated from 0 to 4 with greater scores indicating greater intensity of PTSD symptoms. The PCL has demonstrated strong internal consistency, test-retest reliability, and convergent validity (Weathers, Keane, & Davidson, 2001) and has also been validated with U.S. military personnel (Bliese et al., 2008). In the current study, the PCL showed good internal consistency ($\alpha = .81$).

2.4 Data Analytic Plan

To address whether the number of LEC categories of exposure predicted symptom intensity, multiple linear regression models were used to predict PCL, BDI-II, and BAI total scores from the total number of LEC categories, scored from 0-17, after controlling for age and sex in all analyses. More specifically, we first included only the count of those categories that happened to participants for our first set of analyses. We then used the count of categories of events that happened to participants, that

they witnessed, or that they heard about in the same model to independently predict the outcomes of interest from each exposure intensity.

Next, for the analyses examining interpersonal trauma, we operationalized interpersonal traumas from the LEC items including: "physical assault", "assault with a weapon", "sexual assault", "an unwanted or uncomfortable sexual experience", and "captivity". We included count variables of the number of interpersonal trauma categories that happened to them and the number of non-interpersonal trauma that happened to them (which was the total count across categories when excluding the interpersonal trauma categories recorded above) to test the additive prediction of interpersonal traumas to the count of non-interpersonal traumas.

To examine whether the number of trauma categories predicted a positive screen for a likely diagnosis of depression and anxiety, all three sets of analyses were also conducted in logistic regressions predicting scores above clinical cutoffs for the BDI-II and BAI (0 = negative screen, 1 = positive screen). There were no missing data for any of the measures included in the current analyses.

3.0 Results

Table 1 outlines the percentage of the sample that endorsed each LEC category. The average number of categories of trauma reported as happening to them was 7.41 (SD = 2.87). Only 2.5% of the sample ($n = 3$) reported direct exposure to only one event. Two or more events happened to 97.5% and three or more events happened to 92.6%. The results indicate that a fire or explosion (82%) and a transportation accident (74%) were the most commonly endorsed traumas that directly happened to them, outside of combat trauma (98%). The average number of categories witnessed was 5.06 (SD = 3.70) and the mean number of events heard about was 3.21 (SD = 4.12). Examination of the distributions reveals that the number of traumas that happened to them was approximately normally distributed, whereas numbers of categories for both witnessing and hearing about traumas were positively skewed with a smaller number of categories endorsed.

3.1 Number of trauma category exposures predicting mental health symptoms.

We first used multiple regression to test whether the absolute count of trauma categories that happened to participants predicted mental health symptoms. When assessing outcomes continuously, the number of LEC categories that happened to participants significantly predicted higher PCL symptoms ($\beta = 0.24$, 95% CI [0.10, 0.39], $p < .001$), BDI-II symptoms ($\beta = 0.25$, 95% CI [0.11, 0.40], $p < .001$), and BAI symptoms ($\beta = 0.22$, 95% CI [0.08, 0.37], $p = .003$). Figure 1 illustrates the association by depicting scatterplots of the relationship between number of trauma categories endorsed and PCL, BDI-II, and BAI symptoms.

We also ran the analyses predicting whether the number of trauma categories that happened to participants would predict scores above clinical cutoffs for the BDI-II and BAI. The number of categories predicted positive cutoff scores for the BDI-II ($B = 0.15$, 95% CI [0.01, 0.29], $OR = 1.16$, $p = .032$) but not BAI ($B = 0.13$, 95% CI [-0.00, 0.26], $OR = 1.14$, $p = .055$).

3.2 Number and intensity of trauma exposures predicting mental health symptoms.

We next tested whether the absolute number count of trauma categories within different levels of trauma intensity (happened to them, witnessed, heard about) differentially predicted mental health symptoms. When including counts of the number of trauma categories within each intensity predicting mental health symptoms within the same model, the number of traumas that happened to them continued to predict PCL symptoms ($\beta = 0.24$, 95% CI [0.09, 0.39], $p = .002$), BDI-II symptoms ($\beta = 0.21$, 95% CI [0.06, 0.36], $p = .003$), and BAI symptoms ($\beta = 0.21$, 95% CI [0.05, 0.36], $p = .008$). Neither the number of types of traumatic events witnessed nor the number of types heard about significantly predicted PCL, BDI-II, or BAI symptoms above and beyond the number of categories of traumatic events that happened to them when analyzed in an integrated model.

We also examined whether the absolute number count of trauma categories within different levels of trauma intensity (happened to them, witnessed, heard about) differentially predicted scores

above clinical cutoffs for the BDI-II and BAI. When including counts of the number of trauma categories within each intensity predicting positive screens for the BDI-II and BAI within the same model, the number of traumas that happened to them predicted positive cutoff scores for both the BDI-II ($B = 0.17$, 95% CI [0.02, 0.32], $OR = 1.19$, $p = .017$) and BAI ($B = 0.18$, 95% CI [0.03, 0.33], $OR = 1.20$, $p = .012$). Neither the number of types of traumatic events witnessed, nor heard about significantly predicted either of the dichotomized outcomes.

3.3 Interpersonal traumas predicting baseline mental health symptoms.

Finally, we tested whether the experience of interpersonal traumas predicted greater mental health symptoms than non-interpersonal traumas. The number of types of interpersonal traumas that happened to them did not predict variation in PCL, BDI-II, or BAI scores above and beyond the variation explained by the count of the number of non-interpersonal traumas that happened to them (all β s < 0.09, $ps > .24$).

We also ran these analyses predicting whether the number of interpersonal trauma categories that happened to participants would predict scores above clinical cutoffs for the BDI-II and BAI, and the results replicated the substantive results from the models using the continuous outcomes. The number of interpersonal traumas was not predictive of the outcomes (all B s < 0.02, $ps > .480$).

4.0 Discussion

This study explored the relationships of diversity and intensity of lifetime trauma exposure with psychiatric symptoms in an active-duty military sample of soldiers with combat-related PTSD. Given that our sample is a clinical subset of a population at occupational risk for trauma, it is not surprising that the number of categories of trauma exposure was higher than those reported in prior studies of community samples and military personnel. In our sample, 97% of soldiers endorsed directly experiencing at least two categories of trauma and the average number of categories of trauma that happened to them was 7.4. This rate of exposure is higher than previous research. Among community samples, the rate of

multiple trauma exposures was 79% and the average total number of trauma exposures was 4.3 events (Breslau et al., 2004). Among Post 9/11 Veterans, 79% reported exposure to multiple traumatic events and the average number of trauma events experienced was 6.3 (Dedert et al., 2009). Outside of the Life Events Checklist category of combat or exposure to a war-zone, the most common directly experienced traumatic events reported were: fire or explosion (82%), transportation accident (74%), and assault with a weapon (70%). The least common directly experienced traumatic events in our sample were: captivity (2%), sexual assault (8%), and unwanted or uncomfortable sexual experience (9%).

Consistent with previous research (Agorastos et al., 2014; Brownlow et al., 2018), our study found that exposure to a greater diversity of trauma types was associated with greater self-reported symptom severity of PTSD, depression, and anxiety and that a greater number of categories of trauma predicted positive screens for depression. The results from the current study suggest that beyond affecting risk for the development of these disorders (e.g., Polusny et al., 2011), a greater diversity and intensity of lifetime traumas experienced are associated with a greater severity of symptoms among those with combat-related PTSD. These findings provide additional support for the importance of the cumulative effect of lifetime traumatic experiences among active-duty service members with combat-related PTSD. Consistent with prior literature on the intensity of trauma exposure (e.g., Hoge & Castro, 2006; Rona et al., 2009), associations between lifetime traumas and psychiatric symptoms were limited to firsthand traumatic experiences, rather than those witnessed or learned about. The number of categories of traumas that happened to participants was significantly related to PTSD symptoms, anxiety symptoms, and depressive symptoms, whereas neither categories of traumas witnessed nor categories learned about were associated with psychiatric symptoms above and beyond the influence of traumas directly experienced. It is important to note that this finding should not be interpreted to indicate that witnessing trauma and learning about trauma lack clinical relevance. For example, we did not test the effect of witnessing or learning about trauma for soldiers who did not experience a direct trauma.

Although correlational, these findings raise the possibility that multiple traumas directly experienced across a broader range of categories could additively exacerbate psychiatric symptoms in the context of combat-related PTSD. It is possible that the experience of more categories of traumatic events additively reinforce well-established negative beliefs individuals with PTSD hold about themselves, others, and the world (Resick, Monson, & Chard, 2017). For example, if an individual develops the belief that the world is a dangerous place due to the experience of multiple childhood traumas, each subsequent trauma experienced during military service would serve to reinforce, strengthen, and potentially exacerbate those beliefs. The strengthening of these beliefs likely leads to increased avoidance, decreased social functioning, and an increase in related anxiety and depressive symptoms. This interpretation is consistent with prior work linking the intensity of trauma experienced with symptom severity (Breslau et al., 2004; Pietrzak et al., 2001), and with clinical conceptualizations of the role negative beliefs play in the etiology and maintenance of PTSD symptoms (Resick et al., 2017). Alternatively, a stress sensitization conceptualization (McLaughlin, Conron, Koenen, & Gilman, 2010) would hypothesize that our findings reflect the increased risk for PTSD following trauma in the context of adverse childhood events.

Our hypothesis regarding interpersonal traumas was not supported. Prior work suggests interpersonal traumas are linked with greater PTSD risk (Benjet et al., 2016; Bromet et al., 2017; Shalev et al., 2019; Kessler, Aguilar-Gaxiola et al 2017). However, the present study found that the number of types of interpersonal traumas did not predict depressive, anxiety, or PTSD symptoms beyond non-interpersonal traumas experienced. Similarly, the presence or absence of a directly experienced interpersonal trauma did not moderate the relationship between the number of trauma types and psychiatric symptom severity. Although the parent trial had an exclusion criterion for soldiers' with a primary index trauma involving sexual assault, no participant ended up being excluded for this reason (Reger et al., 2016). Regardless, these analyses may have been affected by the small number of

participants reporting some forms of interpersonal trauma (e.g., sexual assault). This study's sample was drawn from a single Army infantry installation. This could have affected the demographics of the sample and the prevalence of interpersonal trauma in our sample. Population-based research on those with combat-related PTSD will be important to evaluate the stability of these findings. In addition, combat exposure, which was essentially a constant in this study, may have affected these analyses. We do not know the extent to which exposure to combat or a war zone was interpersonal in nature. This limitation of our measure may have attenuated the ability to detect the role of interpersonal trauma on symptoms. Similarly, our checklist assessment allowed binary endorsement of only a few interpersonal traumas, and this potential reduction in sensitivity may obscure the factors that link interpersonal traumas to increased PTSD risk.

Findings should be understood in light of the general limitations of this study. These data are cross-sectional, and we do not know the psychiatric functioning of soldiers prior to the military deployment that resulted in their diagnosis of PTSD. We do not know which trauma types were experienced during or before deployment nor the relative contribution of each trauma category to psychiatric functioning. Further, given the correlational nature of our results, the directionality of these relationships is not clear. It is possible that individuals who are experiencing greater psychiatric symptoms are more likely to bring memories of prior traumas to mind and endorse a variety of categories given negative attentional biases. Future longitudinal research could follow military personnel over time with re-occurring assessments for trauma exposure and symptoms. Limitations of the trauma inventory used are also noteworthy. It is possible that soldiers checked multiple categories of events or intensities for a single trauma. This study uses trauma category counts in a manner that essentially presumes event equivalence. That is, if five events happened to one participant, these analyses did not weight what type of events occurred. Similarly, the frequency of events experienced within a given category was not measured. Trauma measurement that has greater granularity, including

the ability to assess a broad range of combat trauma, with regard to category, frequency, and intensity could help clarify how a diversity of traumas impacts psychiatric functioning. Finally, our sample was comprised of active duty U.S. Army soldiers and may not generalize to members of other military services, soldiers with different demographics (e.g., military occupational specialties), or civilian populations.

Previous work linking diversity of trauma exposure to PTSD risk provides support for the value of assessing lifetime traumatic experiences to inform diagnostic practice. To our knowledge, this is the first study that examines the relationship between lifetime trauma exposure and psychiatric functioning in a sample of active duty military personnel with PTSD. Our results expand on prior literature, suggesting that among individuals diagnosed with combat-related PTSD, those who have experienced a diversity of categories of traumas experience greater psychiatric symptoms. Given the temporal recency and significance of combat-related traumas among post 9/11 service members and veterans, clinicians working with these populations may focus exclusively on combat experiences and miss critical information about the frequency and variety of lifetime trauma exposure that could inform psychiatric functioning. Consistent with evidence-based practice (e.g., Foa, Hembree, & Rothbaum, 2007; Resick, Monson, & Chard, 2007), these results stress the potential value of in-depth assessment of patient background and trauma history when determining severity of current symptoms and prognosis.

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Table 1

Soldiers Lifetime Intensity of Exposure to Categories of Trauma (*N* = 162)

Event	Happened to Them	Witnessed it	Learned About It	Doesn't Apply
	<i>n</i> (%)			
Natural disaster	91 (56%)	47 (29%)	30 (19%)	36 (22%)
Fire or explosion	132 (82%)	78 (48%)	35 (22%)	13 (8%)
Transportation accident	119 (74%)	57 (35%)	27 (17%)	24 (15%)
Serious accident at work, home, or during recreational activity	17 (44%)	60 (37%)	29 (18%)	37 (23%)
Exposure to toxic substance	61 (38%)	20 (12%)	27 (17%)	48 (30%)
Physical assault	101 (62%)	66 (41%)	25 (15%)	32 (20%)
Assault with a weapon	114 (70%)	65 (40%)	29 (18%)	19 (12%)
Sexual assault	13 (8%)	8 (5%)	39 (24%)	107 (66%)
Other unwanted or uncomfortable sexual experience	15 (9%)	6 (4%)	22 (14%)	116 (72%)
Combat or exposure to a war-zone	159 (98%)	57 (35%)	30 (19%)	2 (1%)
Captivity	3 (2%)	10 (6%)	29 (18%)	121 (75%)
Life-threatening illness or injury	31 (19%)	54 (33%)	31 (19%)	66 (41%)
Severe human suffering	30 (19%)	81 (50%)	32 (20%)	36 (22%)
Sudden violent death	27 (17%)	84 (52%)	56 (35%)	25 (15%)
Sudden, unexpected death of someone close to you	80 (49%)	54 (33%)	41 (25%)	24 (15%)
Serious injury, harm, or death	82 (51%)	40 (7%)	21 (13%)	48 (30%)

you caused to someone else

Any other very stressful event or experience	73 (45%)	32 (20%)	17 (11%)	26 (16%)
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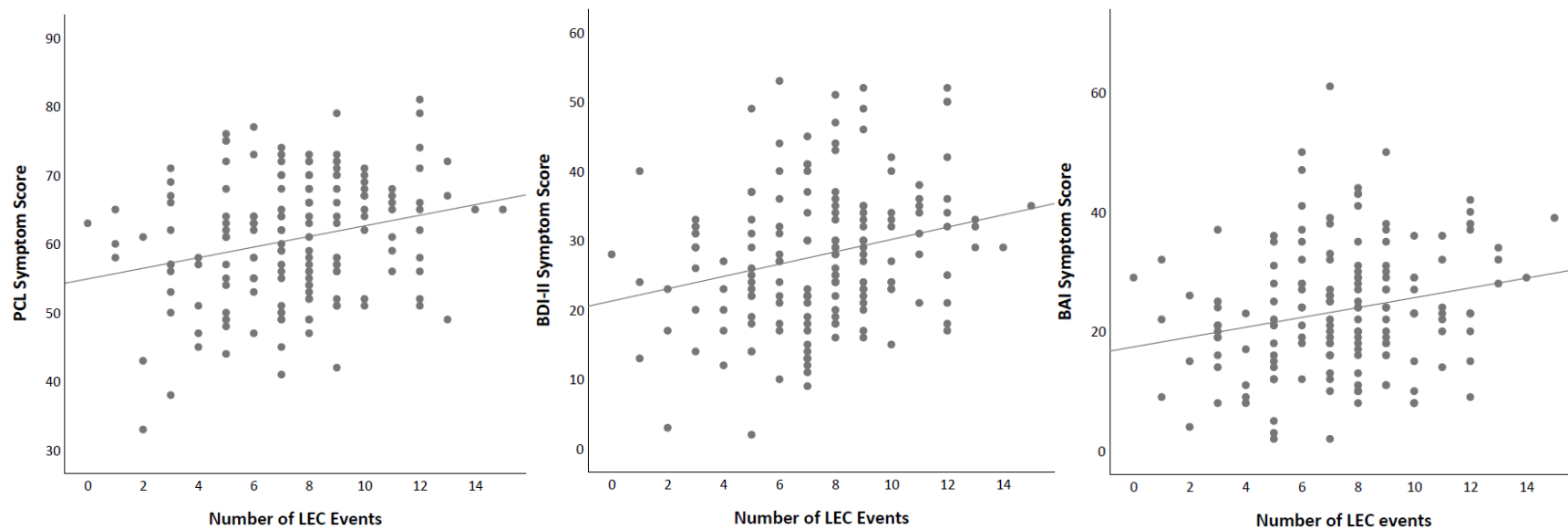


Figure 1. Scatterplots of the association between reported mental health symptoms and the number of Life Events Checklist (LEC) event categories that happened to them.