Lifetime Trauma Exposure in Veterans With Military-Related Posttraumatic Stress Disorder: Association With Current Symptomatology

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Objective: This study examined whether trauma exposure before, during, and/or after military service contributed to current levels of posttraumatic stress disorder (PTSD) and adjustment. Further, we investigated whether trauma exposure before military service was mediated or moderated by military trauma in its effects on current PTSD and adjustment.

Method: In this retrospective study, archival data from the medical records of 422 male veterans diagnosed with PTSD between December 2001 and July 2004 at a Veterans Administration Medical Center PTSD clinic were analyzed. Measures included the Clinician-Administered PTSD Scale interview as well as self-report measures assessing trauma history, health problems, and general psychopathology (including PTSD).

Results: Findings indicated that nonmilitary-related trauma was prevalent in this sample (90%). Regression analyses for PTSD symptom severity revealed that age, greater combat exposure, and a history of physical assault after military service were significantly associated with more severe PTSD symptoms. Childhood physical abuse, adult sexual trauma, and a history of being physically assaulted during military service were also significantly associated with PTSD symptom severity. Mediational analyses indicated that childhood trauma was associated with both adult trauma and increased symptomatology on various outcome measures. Moderational analyses indicated that adult trauma exposure moderated the effect of childhood trauma exposure on health complaints.

Conclusions: Results suggest that several variables, including age, greater combat exposure, and premilitary and postmilitary traumas, are associated with increased PTSD symptomatology. This finding underscores the importance of conducting a thorough assessment of trauma when diagnosing PTSD.

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In the spirit of full disclosure and in compliance with all ACCME Essential Areas and Policies, the faculty for this CME article were asked to complete a statement regarding all relevant financial relationships between themselves or their spouse/partner and any commercial interest (i.e., a proprietary entity producing health care goods or services consumed by, or used on, patients) occurring within at least 12 months prior to joining this activity. The CME Institute has resolved any conflicts of interest that were identified. The disclosures are as follows: Drs. Clancy, Graybeal, Calhoun, Erkanli, Hertzberg, and Beckham and Mss. Tompson, Badgett, and Feldman have no significant commercial relationships to disclose relative to the presentation.

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Although traumatic events such as accidents, life-threatening illnesses, sudden death of loved ones, natural disasters, interpersonal violence, and sexual abuse are commonplace, their individual contribution to PTSD severity and chronicity remains relatively unknown. The cumulative literature examining the prevalence and impact of trauma suggests that at least two thirds of American adults have experienced at least 1 traumatic event in the course of their lives.[1] Multiple traumas are commonplace as well.[1,2]

Exposure to a traumatic event is a risk factor for a host of psychiatric disorders, including posttraumatic stress disorder (PTSD). It has been estimated that 13% to 17% of Vietnam theater veterans currently suffer from PTSD.[3] In contrast, approximately 1% of Gulf War veterans from Desert Storm have been diagnosed with PTSD.[4,5] In the only published report to date examining rates of PTSD in veterans from the Afghanistan and Iraq Wars,[6] rates of PTSD in these populations were estimated to be 11% in Afghanistan-era veterans and 15% to 17% in Iraq-era veterans. Unfortunately, more than one third of people with

Table 1. Demographic Information for 422 Male Veterans With Posttraumatic Stress Disorder

Variable	Mean (SD)
Age, y	54.0 (8.33)
Education, y	12.82 (2.29)
Hollingshead Index[21] score	59.48 (10.12)
	%
Race	
White	41
African American	55
American Indian	1
Hispanic	2
Other	1
Marital status	
Married	56
Separated/divorced	33
Never married	8
Widowed	3
Employment status	
Unemployed	59
Working full-time	32
Working part-time	9
Military service	
Vietnam War	78
Persian Gulf War	11
Korean War	2
World War II	2
Other service	7

lifetime PTSD fail to recover even after many years,[2] a fact underscoring the importance of understanding what factors play a role in the chronicity and severity of this disorder.

Although combat exposure alone is usually sufficient to explain the development of PTSD, it has been hypothesized that premilitary traumas, particularly childhood physical and sexual abuse, also appear to be a predisposing factor in developing combat-related PTSD and may lead to more severe symptoms of military-related PTSD. However, the relative explanatory contribution of childhood trauma has been questioned.[7–10]

To date, research studies examining precombat traumas other than sexual or physical abuse have been scarce and present several limitations. First, the literature has focused primarily on 1 or 2 types of events (usually childhood sexual abuse and physical abuse) in a particular study.[7,10–12] There are only a few studies that have examined the impact of other traumas such as accidents, natural disasters, or personal illness.[13] Second, most studies examining the effects of childhood abuse on PTSD symptoms have relied on trauma measures that have not been standardized or normed on the general population and thus may not be especially helpful in clinical contexts.[13] Third, most studies examining the role of precombat traumas on PTSD have focused on trauma that occurred before military service rather than including assessment of traumas that may have occurred during or after military service. Fourth, most research studies examining precombat traumas focused on whether reported participants had experienced a traumatic event or not and have not assessed whether the trauma met DSM-IV Criterion A for PTSD (i.e., the person experienced or was confronted with an event that involved death, serious injury, or threat to the physical integrity of self and others to which he/she responded with intense fear, helplessness, or horror).[14] Finally, while it has been shown that exposure to war-zone stressors is more strongly associated with PTSD symptom severity than other potentially traumatic events,[15–17] these studies have been limited to assessment of 1 or 2 premilitary traumas. Studies examining the impact of trauma exposure across the lifespan on PTSD symptom severity are needed. The purpose of the present study is to examine the prevalence of traumatic events, in addition to combat, in a veteran population and to determine how these other traumatic events may be related to levels of psychological symptom severity.

METHOD

Participants and Procedures

In this retrospective study, archival data from the medical records of 422 male veterans who had completed the Traumatic Life Events Questionnaire (TLEQ)[18] and were diagnosed with PTSD during an evaluation between December 2001 and July 2004 at a Veterans Administration Medical Center specialty outpatient PTSD clinic were analyzed. PTSD diagnosis was based on a structured clinical interview, the Clinician-Administered PTSD Scale (CAPS).[19] PTSD symptoms were considered present based on the CAPS Frequency > 1/Intensity > 2 decision rule, which has been shown to provide good diagnostic utility.[20] Interrater agreement among clinicians for PTSD diagnosis was excellent ($\kappa = .92$). The majority of the sample, 87%, had PTSD from a combat-related trauma, and 13% had PTSD from noncombat traumas sustained during military service. All statistical analyses were performed with SAS software for the PC, version 8.2 (SAS Institute, Inc., Cary, N.C.).

Demographic information, including ethnic minority status, marital status, and employment status, was collected with a demographic questionnaire designed by the research team. The sample mean age was 54 years; the majority were Vietnam-era veterans, African American, unemployed, currently married, and of middle-lower class status. For demographic data, see Table 1. Three hundred sixty-six veterans (87%) reported combat-related traumas.

Measures of PTSD and Trauma

Clinician-Administered PTSD Scale-Diagnostic Version. The CAPS[19] was used to assess military-related PTSD diagnosis and has established validity and reliability.

Combat Exposure Scale. The Combat Exposure Scale (CES)[22] is a widely used, 7-item, Likert-type scale designed to measure level of wartime trauma exposure. The

Table 2. Categories of Trauma Created From the Traumatic Life Events Questionnaire (TLEQ)

Trauma Category	TLEQ Item Number and Description
Personal trauma	5. Sudden and unexpected death of close friend/loved one 6. Survival of life-threatening or disabling accident/assault/illness by loved one 7. Personal life-threatening illness 20. Miscarriage by self or partner 21. Abortion by self or partner
Attack	8. Robbery or witness to a robbery 9. Beaten and/or badly hurt by a stranger 10. Witness to a beating or killing 11. Threat made to self 14. Physically abused by a spouse/partner 19. Stalked
Childhood physical violence	13. Severely physically punished 12. Witness to family violence
Sexual abuse as a child	15. Before age 13, touched/fondled by someone ≥ 5 y older, against your will 16. Before age 13, touched/fondled by someone close to your age, against your will 17. After age 13 and before age 18, touched/fondled, against your will
Sexual abuse as an adult	18. Touched/fondled against your will
Accident or disaster	1. Natural disaster 2. Serious motor vehicle accident 3. Any other kind of serious accident
War-zone exposure	4. Exposed to warfare or combat[a]

[a]Variable not used.

CES has good internal stability ($\alpha = .85$) and test-retest reliability.[22]

Davidson Trauma Scale. On the Davidson Trauma Scale (DTS),[23] participants first report an autobiographical narrative of a trauma and subsequently rate both symptom frequency (from 0 [not at all] to 4 [everyday]) and severity (from 0 [not at all distressing] to 4 [extremely distressing]) for all DSM-IV PTSD symptoms within the past week. Responses are scored as a total score and separate total B (reexperiencing), C (avoidance and numbing), and D (hyperarousal) symptom scores. This scale has high reliability and validity across trauma populations.

Traumatic Life Events Questionnaire. The TLEQ[18] is a 22-item questionnaire designed to assess exposure and response to traumatic events. Respondents are asked how many times they have experienced each of 22 different traumatic events (DSM-IV Criterion A1 for PTSD). Those who endorse a particular event are also asked whether it caused intense fear, helplessness, or horror (DSM-IV Criterion A2 for PTSD), as well as several other follow-up questions, such as when the event first occurred. In addition, the authors added follow-up questions to all of the items to specify whether the event occurred prior to, during, and/or after military service: "Did it happen ___ before the military? ___ while on active duty? ___ as a veteran?" (Note that the participant could check any or all time periods during which the event occurred.) Initial studies have demonstrated the content validity and reliability of this measure. The average convergent validity with an interview 1 week later for the TLEQ was 85% (range, 74%–97% for individual items). The comprehensive nature of the TLEQ allowed us to tally the number of different traumas experienced by each veteran and group them into categories and time frames. We created 6 categories of traumatic experiences according to face validity to simplify this information (Table 2). The categories included personal trauma (sudden and unexpected death of a close friend/loved one, survival of life-threatening illness, personal life-threatening illness, miscarriage, abortion), attack (robbery, being beaten by stranger, being a witness to a beating/killing, threat to self, being physically abused by partner, being stalked), childhood violence (severely physically punished, witness to family violence), childhood sexual abuse, sexual abuse as an adult, and accident or disaster (experiencing a natural disaster, motor vehicle accident, or any other serious accident). In addition, a distinction is made between those who endorsed a particular event and those who endorsed it as a Criterion A event.

Alcohol Use Disorders Identification Test. The Alcohol Use Disorders Identification Test (AUDIT)[24] is a 10-item questionnaire used to screen for problematic alcohol use. It has been found to yield valid and reliable scores.

Beck Depression Inventory. The Beck Depression Inventory (BDI)[25] is a 21-item, forced-choice measure of general depression severity that has been found to yield valid and reliable scores.

Cook-Medley Hostility Scale. A short form of the original Cook-Medley Hostility Scale,[26] consisting of 27 items derived on the basis of rational and empirical analysis, was used to assess hostility. Studies of the short form's construct validity demonstrate that cynicism and mistrust are the primary components of hostility measured by the scale.[26] A total score was calculated.

Self-Reported Health. In this self-report measure used in the National Vietnam Veterans Readjustment Study,[3] respondents are presented with 2 dichotomous rating checklists (0 = no, 1 = yes). The first list includes 22 symptoms (e.g., diarrhea, muscle aches), and the second includes 37 chronic health problems; respondents indicate the lifetime and past-year occurrence of these chronic conditions. Three scores result: total health complaints, lifetime physical conditions, and current physical conditions.

RESULTS

Prevalence of Traumatic Events

The prevalence rates for each of the TLEQ items are presented in Table 3. The total number of events reported

Table 3. Traumatic Life Events Questionnaire Response Rates in 422 Male Veterans

Trauma Type	Said It Happened, N (%)	Missing, N	Endorsed Criterion A,[a] N (%)	Missing, N	Criterion A[a] Only: Said It Happened Before Military, N (%)	Missing, N	Criterion A[a] Only: Said It Happened During Military, N (%)	Missing, N	Criterion A[a] Only: Said It Happened After Military, N (%)	Missing, N
Natural disaster	352 (84)	2	255 (62)	8	80 (19)	8	84 (20)	8	172 (42)	9
Motor vehicle accident	206 (49)	0	144 (35)	8	35 (8)	8	40 (10)	8	89 (22)	8
Other accident	154 (37)	2	130 (31)	6	31 (7)	6	66 (16)	6	56 (13)	7
War zone	352 (83)	0	315 (77)	11	7 (2)	13	309 (76)	13	16 (4)	14
Death of loved one	380 (91)	3	302 (75)	19	77 (19)	20	156 (39)	20	219 (54)	20
Loved one suffering	175 (42)	2	134 (32)	5	22 (5)	6	39 (9)	6	96 (23)	6
Personal illness	166 (39)	0	138 (33)	5	10 (2)	6	47 (11)	6	109 (26)	6
Robbery	105 (25)	0	86 (21)	3	14 (3)	5	20 (5)	5	62 (15)	5
Beaten by stranger	127 (30)	0	103 (25)	3	27 (6)	3	40 (10)	3	55 (13)	3
Witness attack	160 (38)	1	119 (29)	7	27 (7)	7	65 (16)	7	62 (15)	7
Death threat	224 (53)	2	149 (37)	17	23 (6)	19	62 (15)	19	93 (23)	19
Childhood physical abuse	93 (22)	0	82 (20)	3	79 (19)	3	2 (0.5)	3	3 (1)	3
Family violence	170 (40)	0	151 (36)	1	146 (35)	1	7 (2)	1	11 (3)	1
Spouse physical abuse	105 (25)	1	54 (13)	1	14 (3)	3	16 (4)	3	32 (8)	3
Childhood sexual abuse by an adult	50 (12)	0	38 (9)	1	38 (9)	1	N/A	N/A	N/A	N/A
Childhood sexual abuse by peer	26 (6)	0	8 (2)	6	8 (2)	6	N/A	N/A	N/A	N/A
Teen sexual abuse	19 (5)	2	12 (3)	3	10 (2)	3	2 (0.5)	3	0	3
Adult sexual assault	25 (6)	0	14 (3)	0	2 (0.5)	0	11 (3)	0	1 (0.2)	0
Stalking	63 (15)	0	45 (11)	6	5 (1)	7	17 (4)	7	25 (6)	7
Miscarriage	104 (25)	2	63 (15)	8	6 (1.5)	10	15 (4)	9	40 (10)	9
Abortion	78 (19)	3	35 (8)	6	3 (0.7)	6	4 (1)	6	30 (7)	6

[a]DSM-IV criterion A for posttraumatic stress disorder[14]: the person experienced or was confronted with an event that involved death, serious injury, or threat to the physical integrity of self and others to which he/she responded with intense fear, helplessness, or horror.
Abbreviation: N/A = not applicable.

ranged from 0 to 18 (mean = 7.87, SD = 3.55). The total number of trauma types meeting Criterion A reported on the TLEQ ranged from 0 to 18 (mean = 6.00, SD = 3.38). The total number of trauma types meeting Criterion A occurring before military service ranged from 0 to 13 (mean = 1.63, SD = 2.07), while the total number of trauma types meeting Criterion A occurring during military service ranged from 0 to 10 (mean = 2.60, SD = 1.93). Additionally, the total number of Criterion A traumas occurring after military service ranged from 0 to 12 (mean = 2.88, SD = 2.49).

Twenty-seven participants (6%) reported only 1 traumatic event meeting Criterion A, while 34 (8%) reported 2 traumatic events potentially meeting Criterion A, and 354 (84%) reported 3 or more traumatic events potentially meeting Criterion A. Several individuals reported experiencing events that could have been traumatic but did not consider them to be so. For example, 44% (N = 11) of those subjects who reported experiencing a sexual assault during adulthood, 30% (N = 62) of subjects reporting a motor vehicle accident, 24% (N = 12) of those reporting childhood sexual abuse, and 12% (N = 11) of subjects reporting childhood physical abuse denied fear, helplessness, or horror in response to the event.

A review of Table 3 shows a wide range of endorsement for individual events (ranging from 5% for teenaged sexual abuse to 91% for death of a loved one) and response to those events that meet Criterion A (ranging from 2% for childhood sexual abuse by a peer to 77% for serving in a war zone). Events most likely to result in a perception of Criterion A were war-zone service, childhood physical abuse, accident (not motor vehicle accident), and death of a loved one.

Seventy people (17%) reported experiencing at least 1 event that fell under the category of "attack before the military." One hundred thirty-nine individuals (33%) reported events that fell under the category of "attack while on active duty." One hundred eighty-one individuals (43%) reported trauma that fell under the category of "attack as a veteran." Ninety-six participants (23%) endorsed experiencing at least 1 trauma that fell under the category of "personal trauma before the military," while 189 (45%) endorsed experiencing at least 1 trauma under the category of "personal trauma while on active duty," and 288 (68%) endorsed 1 trauma that fell under the category of "personal trauma as a veteran." One hundred twelve individuals (27%) experienced an accident before military service, while 153 (36%) endorsed experiencing an accident during military service and 223 (53%) after

Table 4. Summary of Simultaneous Regression Analyses

Dependent Variable	B (SE)[a]	p Value	R^2
CAPS[20]			
Age	–0.28 (0.12)	.0165	0.10
Combat	0.25 (0.08)	.0025	
Attack after the military	8.71 (2.07)	.0001	
DTS[23]			
Age	–0.55 (0.15)	.0002	0.17
Combat	0.37 (0.10)	.0005	
Childhood physical violence	6.22 (2.60)	.0172	
Attack after the military	9.87 (2.59)	.0002	
BDI[25]			
Age	–0.15 (0.07)	.0227	.15
Childhood physical violence	2.96 (1.17)	.0119	
Sexual assault during the military	7.69 (3.34)	.0219	
Attack after the military	4.95 (1.16)	< .0001	
Cook Medley[26] total			
Childhood sexual assault	–1.70 (0.83)	.0400	.10
Illness during the military	1.22 (0.53)	.0218	
Attack after the military	1.51 (0.53)	.0046	
AUDIT[24]			
Age	–0.14 (0.06)	.0331	.08
Attack after the military	3.16 (1.13)	.0055	
Total health complaints			
Minority status	–1.77 (0.49)	.0004	.13
Childhood physical violence	1.84 (0.54)	.0007	
Childhood sexual trauma	–1.99 (0.84)	.0185	
Attack after the military	1.51 (0.54)	.0052	
Total lifetime medical problems			
Minority status	–0.90 (0.30)	.0025	.12
Age	0.06 (0.02)	.0005	
Attack during the military	1.02 (0.33)	.0020	
Total medical problems in past year			
Age	0.06 (0.02)	.0003	.11
Attack during the military	0.99 (0.30)	.0011	

[a]Standardized beta coefficients were used.
Abbreviations: AUDIT = Alcohol Use Disorders Identification Test, BDI = Beck Depression Inventory, CAPS = Clinician-Administered PTSD Scale-Diagnostic Version, DTS = Davidson Trauma Scale, PTSD = Posttraumatic Stress Disorder.

military service. The prevalence of sexual trauma during and after military service was low. Eleven participants (3%) endorsed experiencing sexual trauma during military service, while only 1 participant (0.2%) endorsed experiencing sexual trauma after military service. With respect to childhood traumas, 168 participants (40%) endorsed experiencing at least 1 event that fell under the category of "childhood physical violence," while 45 (11%) endorsed experiencing at least 1 trauma that fell under the category "childhood sexual abuse."

Regression Analyses

First, we calculated the presence or absence of traumatic experiences per veteran in each trauma category and separated these into 3 possible time frames: those that occurred before military service, those that occurred during military service, and those that occurred after military service (with the exception that the 2 childhood event variables were assumed to have happened only before military service). This calculation resulted in a total number of 14 predictor variables and 9 outcome variables. Eight outcome variables were analyzed using simultaneous regression, as the variables were continuous (CAPS, DTS, Cook-Medley, BDI, AUDIT, total health complaints, total lifetime health conditions, and total past-year health conditions). Employment status was analyzed using logistic regression, since it was a dichotomous variable. Given the large number of outcome variables, we applied a Bonferroni correction for interpreting the overall tests and predictor variables, resulting in a significant p value of .05/9 = .006.

Once these categories were created, we performed the appropriate regression analyses to assess the extent to which traumatic experiences across the life span would be associated with mental and physical health variables, controlling for the effects of age, race, and combat exposure. Age, race, and combat exposure as measured by the CES were used as covariates to control for their effects, because combat exposure is related to the occurrence and severity of PTSD,[3] and demographic variables such as age and race have been associated with poorer functioning on health indices.[27] Results from the simultaneous regression analyses are presented in Table 4. For purposes of understanding possible contributory predictor variables to the overall R^2, variables at a $p < .05$ are included in the table. However, variables are not reported as significant elsewhere unless a level of $p < .006$ was observed.

Employment status. Logistic regression analyses indicated that the overall model was insignificant.

PTSD severity. Results from the regression analysis using the CAPS as a dependent variable indicated that greater combat exposure and attack after military service were associated with increased PTSD severity. The model accounted for 10% of the variance in CAPS scores ($F = 2.93$; $df = 16,401$; $p = .0001$).

Results from a second regression analysis using the DTS as a dependent variable indicated that younger age, greater combat exposure, and attack after military service were related to increased PTSD severity. The model accounted for 17% of the variance in DTS scores ($F = 5.10$; $df = 16,396$; $p < .0001$).

Depression as measured by the BDI. Results from a regression analysis using the BDI as a dependent variable indicated that attack after military service was associated with increased depressive symptoms. The model accounted for 15% of the variance in BDI scores ($F = 4.39$; $df = 16,405$; $p < .0001$).

Hostility as measured by the Cook-Medley. Results from the regression analysis using the total score of the Cook-Medley ($F = 2.85$; $df = 16,405$; $p < .0002$) indicated that attack after military service was associated with the overall hostility score, with the model accounting for 10% of the variance in hostility scores.

Alcohol use. A regression analysis using the AUDIT total score as the dependent variable ($F = 2.19$; $df = 16,405$; $p < .005$) indicated that postmilitary attack was associated

Table 5. Sobel Test

Variable	Test Statistic
Davidson Trauma Scale[23]	3.392**
Mississippi[34]	3.909**
Beck Depression Inventory[25]	3.627**
Cook Medley[26]	3.309**
AUDIT[24]	1.649
Total health complaints	3.147†
Lifetime health conditions	2.480*
Past-year health conditions	2.552*

*p < .05.
†p < .01.
**p < .001.
Abbreviation: AUDIT = Alcohol Use Disorders Identification Test.

with the highest possible number of alcohol problems. The total model accounted for 8% variance in the AUDIT scores.

Health status. The model for health complaints was significant (F = 3.94; df = 16,405; p < .0001). Minority status, childhood physical violence, and attack after military service were each associated with increased total health complaints and accounted for 13% of the variance. For lifetime health conditions, the overall model was significant, (F = 3.49; df = 16,401; p < .0001), with older age, minority status, and attack during military service associated with increased lifetime conditions and accounting for 12% of the variance. For total medical conditions in the past year, (F = 3.05; df = 16,396; p < .0001), older age and attack during military service were significantly associated with total medical conditions in the past year, accounting for 11% of the variance.

In summary, results from the regression analyses suggest that various trauma exposures, in particular attack after military service, were significantly associated with PTSD severity, depressive symptoms, hostility, and health status. Across PTSD measures, only younger age, combat exposure, and attack after military service were significant predictors of symptom severity. In considering premilitary trauma exposure, childhood physical violence was significantly (p < .0001) associated with health complaints.

In relation to the hypothesis of whether premilitary traumas predict current PTSD severity, results indicated that total number of premilitary trauma categories was associated with increased DTS (p < .0006), combat exposure (p < .05), and total number of postmilitary traumas (p < .0001). The number of traumas before military service was not significantly associated with total CAPS scores. Childhood physical violence was also significantly related to greater combat exposure (p < .01) but was not associated with total CAPS scores.

Moderation and Mediation of Traumatic Events on Adjustment Measures

In order to evaluate the contribution of childhood and adult trauma to the outcomes, we evaluated whether adult trauma exposure moderated or mediated the relationship between childhood trauma and the adjustment variables. Since trauma exposure can be conceptualized as either a moderator (quantifiable event) or a mediator (psychological process), both model types were tested. Childhood and adult trauma exposures were coded as summary scores (0–6 for childhood trauma and 0–5 for adult trauma). For moderation, regression analyses were conducted entering covariates (i.e., age, ethnicity), childhood trauma, adult trauma, and the interaction of childhood and adult trauma for each dependent variable. The interaction term was significant only for health complaints (F = 5.81, df = 1408, p < .05), suggesting that adult trauma exposure moderated the effect of childhood trauma exposure on health complaints. For all other dependent variables, the interaction term was insignificant, suggesting that adult trauma did not moderate the effect of childhood trauma for any of the other adjustment variables.

A test of mediation was conducted for childhood trauma exposure and adult trauma exposure on the outcomes. Mediational hypotheses were tested for the association involving childhood and adult trauma in predicting PTSD symptoms, hostility, health status, and depression. Consistent with the requirements for demonstrating mediation,[28] childhood trauma was associated with both adult trauma and several of the outcomes (employment status, DTS, BDI, Cook-Medley, AUDIT, total health complaints, lifetime health conditions, and past-year health conditions but not CAPS). To examine whether the effect of childhood trauma on outcomes was partially mediated by adult trauma, a Sobel test[28–32] was conducted, and these values are reported in Table 5. Analyses revealed that, for all the continuous variables except the AUDIT, the effect of childhood trauma exposure was at least partially mediated by adult trauma exposure.

DISCUSSION

In this study, we evaluated lifetime trauma exposure rates in a help-seeking sample of male veterans. Further, we examined whether trauma exposure prior to, during, and/or after military service contributed to current measures of PTSD and adjustment. Finally, we investigated whether trauma exposure prior to military service was mediated or moderated by adult trauma in its effects on current PTSD and adjustment.

The majority of the sample (84%) reported 3 or more trauma exposures. In the current study, we also included questions regarding whether participants perceived the reported events as traumatic. Although 100% of veterans reported they were exposed to a potentially traumatic event, between 11% (for war zone exposure and family violence) and 69% (for childhood sexual abuse by a peer) did not consider a particular event to be traumatic. This

finding underscores the importance of evaluating perceptual response to traumatic events.

In comparison with another report of help-seeking combat veterans,[34] the rates for childhood physical abuse (22% in the current sample vs. 15% in the Frueh et al.[34] article) and childhood sexual abuse (12% in the current sample vs. 1% in the Frueh et al.[34] article) were higher in the current study. This disparity may have been due to differences in rates of PTSD for the samples (100% in the current sample vs. 80.6% in the Frueh et al.[34] article) or trauma report methods (self-report vs. clinician queried).

The focus of PTSD diagnosis in veterans typically assesses combat exposure.[3] However, in this sample, the occurrences of other trauma exposures during military service (occurring in up to 39% of the sample) underscores the need for the other traumatic events during military service aside from combat to be assessed.[35] The results suggest that the majority of veterans evaluated in an outpatient PTSD clinic are likely to have experienced multiple trauma exposures over the lifespan.

Furthermore, the results of the study revealed that many veterans (up to 54%) report postmilitary trauma exposure. This time period of trauma, particularly in the category of "attack as a veteran," was significantly associated with the majority of the current PTSD and adjustment measures.

Trauma exposure has been shown to increase the likelihood of further trauma exposure,[36,37] and cumulative trauma exposure has been shown to be more significant to medical problems.[38] Taken together, these results underscore the need for identifying all sources of traumatization, using a broad-band trauma exposure measure in evaluating current PTSD severity and adjustment.[39,40]

Regression analyses for PTSD symptom severity suggested that age, greater combat exposure, and attack after military service were most consistently associated with higher rates of PTSD symptoms. However, other traumatic events, including childhood violence, sexual trauma, and attack during military service, were also significantly associated with symptom severity. As reported in previous studies,[27] older age and minority status were associated with poorer reported health outcomes. Moderator analyses indicated that adult trauma significantly ($p < .05$) moderated the effect of childhood trauma only on health complaints. Mediational analyses indicated that, for all adjustment variables (including PTSD symptoms, hostility, health complaints and conditions) except potential alcohol abuse, the effect of childhood trauma exposure was partially mediated by adult trauma exposure.

This study has several limitations. First, all the data assessing trauma exposure were based on retrospective self-report. Thus, causality cannot be determined. Second, this sample was relatively homogeneous and cannot be generalized to individuals who are non–help-seeking, non-veteran or female. Finally, we did not obtain independent verification or documentation of participants' self-reports of trauma exposure. Therefore, we do not know the true extent to which participants' self-reports were valid indicators of trauma exposure. In addition, further research is needed regarding whether treatment directly addressing lifetime trauma exposure would ultimately change functional outcome.

Nonetheless, this study underscores the importance of conducting a thorough trauma history assessment in patients with PTSD. Such an assessment tends to be the exception rather than the rule in most PTSD treatment programs.[41] Assessing nonmilitary-related traumas in veterans with PTSD, as some suggest, may facilitate overall recovery from the effects of traumatization.[39]

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

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