Identifying Factors Linked to a Higher Prevalence of Posttraumatic Stress Disorder Among Younger US Military Veterans

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Abstract

Objectives: Posttraumatic stress disorder is a significant public health concern in the US, with military veterans disproportionately affected. Although younger veterans exhibit a higher prevalence of posttraumatic stress disorder (PTSD) compared to their older counterparts, the mechanisms driving this age-related difference remain unclear. This study examined sociodemographic, trauma-specific, and psychosocial factors that may contribute to the elevated prevalence of PTSD in younger (age <50) vs older (age 50 and older) veterans.

Methods: Data were analyzed from the National Health and Resilience in Veterans Study, which surveyed a nationally representative sample of US military veterans (n = 4,069).

Results: Younger veterans were 3 times more likely to screen positive for PTSD compared to older veterans (weighted 14.7% vs 4.9%, $P < .001$). Mediation analysis revealed that 90% of the association between younger age and PTSD was indirectly mediated by psychosocial and trauma-specific factors. Psychosocial difficulties contributed the most to accounting for this association (42.9%), followed by loneliness (23.6%), avoidance coping (9.7%), adverse childhood experiences (9.5%), and combat exposure severity (4.2%). Secondary analyses identified interpersonal relationship challenges, substance use and self-blame coping strategies, and childhood physical abuse as key mediators of this association.

Conclusion: Psychosocial and trauma-specific factors may mediate the link between younger age and higher rates of PTSD among US military veterans. These findings underscore the importance of targeted interventions designed to address psychosocial challenges, strengthen social connections, and promote adaptive coping strategies among younger veterans who are at risk for or currently living with PTSD.

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Posttraumatic stress disorder (PTSD) is a major public health concern in the US, particularly among military veterans. Prior research has documented a lifetime PTSD prevalence among veterans ranging from 6.9 to 9.4%,[1,2] compared to 6.1% to 6.6% in the general population.[3,4] Epidemiologic studies consistently show a higher prevalence of PTSD among younger veterans.[1,2,5,6] For example, a 2022 study of 3,943 veterans found a lifetime prevalence of PTSD of 21.9% in veterans aged 18–44 years, compared to 12.8% in those aged 45–59 years and 4.0% in those aged 60 years and older.[1] This pattern may reflect a generational effect, where older veterans with PTSD are more likely to have died, thus lowering the observed lifetime prevalence, but the size of this difference warrants further investigation. Similarly, a meta-analysis reported a PTSD prevalence of 23.0% among younger veterans.[7] This trend also extends to the general US population, where younger adults (ages 18–29 years) are 3.5 times more likely to experience PTSD than older adults (65+ years).[3] Several factors may contribute to the higher PTSD prevalence among younger veterans, including sociodemographic characteristics, differences in trauma exposures, and psychosocial influences.

The sociodemographic composition of the US veteran population is evolving, with increased gender and racial/ethnic diversity that may influence PTSD prevalence. According to the 2020 US Census Bureau, the proportion of female veterans doubled from about 4% in 1980 to 9% in 2018 and is projected to reach 17% by 2040.[8] This shift is important because studies have consistently shown that PTSD prevalence is higher among females than males, in both veteran and nonveteran populations.[1–3,5,6,9] Likewise, the veteran population has become more racially and ethnically diverse. In 2020, Vietnam-era veterans were 82.6% White, 9.2% Black, and 4.9% Hispanic, whereas post-9/11 veterans were 65.1% White, 14.6% Black, and 13.0% Hispanic.[8] This shift is relevant because prior research in general population samples indicates that certain racial/ethnic groups, particularly African Americans, experience higher rates of PTSD compared to other racial groups, due to factors such as racial discrimination, lower educational attainment and

Clinical Points

- Younger veterans experience higher rates of posttraumatic stress disorder (PTSD), yet the sociodemographic, trauma-related, and psychosocial factors contributing to this difference are not well understood.
- Evaluating and addressing factors such as relationship strain, loneliness, and maladaptive coping—particularly avoidance and self-blame—can help clinicians more effectively identify, intervene, and provide tailored support for younger veterans at heightened risk for or living with PTSD.

income, and reduced treatment-seeking.[10–12] With increased representation of women and greater racial and ethnic diversity in the US military, combined with evidence showing higher PTSD prevalence in these subgroups, these demographic shifts may partially explain the elevated rates of PTSD observed in younger veterans compared to earlier generations. Although accumulating evidence points to a higher PTSD prevalence among younger veterans, limited research has examined factors that may contribute to this increased burden. Existing studies suggest that trauma-specific and psychosocial factors may play help explain these differences.

Trauma-specific experiences such as adverse childhood experiences (ACEs), combat exposure severity, and military sexual trauma (MST) may help explain the higher prevalence of PTSD in younger vs older veterans. ACEs are well-established risk factors for both the development and persistence of psychopathology, including PTSD.[13,14] Research indicates that military veterans from the all-volunteer era report a higher prevalence of ACEs compared to those from the draft era.[15] This difference may partly reflect recruitment patterns, as younger veterans may have enlisted to escape adverse home environments.[16–18] Additionally, changing military demographics may contribute, as prior studies have shown that females report higher ACEs than males, and that Black and Hispanic individuals report higher ACEs than white individuals.[19] With regard to combat exposure, a 2015 meta-analysis found that deployed personnel with combat exposure reported more PTSD symptoms than those deployed without combat exposure.[20] Previous research has also shown that younger veterans report greater levels of combat exposure compared to veterans of earlier war eras,[21] which may contribute to their increased PTSD prevalence. MST is also prevalent among veterans of both sexes but is particularly pronounced among female service members and veterans[22–25] and is strongly linked to PTSD. For example, a population-based study of US military veterans found that those with a history of MST had significantly higher odds of PTSD, with females exhibiting a 5-fold increase and males showing a 2-to-3-fold increase relative to veterans without MST.[25] Considering the demographic shifts in the current veteran population and the high prevalence of MST, these factors may contribute to the elevated PTSD rates observed in younger veterans.

Several psychosocial factors may contribute to the higher prevalence of PTSD among younger veterans, including differences in perceived resilience, purpose in life, coping strategies, social support, loneliness, and psychosocial reintegration difficulties. Perceived resilience, the ability to adapt to stress and adversity, is a well-established protective factor against PTSD.[5,26–28] This factor may be particularly important for younger veterans, who report higher levels of ACEs, severe combat exposure, and MST, as greater resilience may buffer the negative effects of these experiences. Purpose in life is another protective factor, with research demonstrating that a strong sense of purpose reduces PTSD risk and related comorbidities.[29] Coping mechanisms also play a crucial role in the development and maintenance of PTSD. Avoidance coping, which is positively associated with poor PTSD outcomes,[30–35] may mediate the relationship age and PTSD severity among veterans. Perceived social support, which refers to the belief that one has access to functional support such as emotional, informational, and practical help, can enhance an individual's ability to process and cope with traumatic life events.[36] Meta-analyses have revealed that social support is one of the strongest protective factors against PTSD.[27,37,38] However, younger veterans with PTSD tend to report lower levels of postdeployment social support and unit cohesion relative to those without PTSD, as well as reduced resilience.[39] Loneliness—the subjective feeling of being alone or lacking meaningful connections—may also exacerbate PTSD symptoms and complicate recovery. Prior research has demonstrated that younger veterans with PTSD endorse higher levels of loneliness than older veterans.[40] Finally, psychosocial reintegration challenges, which encompass multiple social and psychological challenges including relationship strain, occupational difficulties, and impaired daily functioning, may contribute to the elevated prevalence of PTSD in younger veterans. Indeed, a recent longitudinal study found that younger veterans with stronger pretrauma psychosocial well-being, including social, vocational, and financial domains, were less likely to develop PTSD.[41]

In the present study, we aimed to (1) characterize the prevalence of PTSD among younger vs. older US veterans and (2) identify trauma-specific and psychosocial factors that mediate the association between younger age and PTSD prevalence.

METHODS

Sample

Data were analyzed from the National Health and Resilience in Veterans Study (NHRVS), which surveyed a nationally representative sample of 4,069 US veterans. Full details about the methodology can be found elsewhere.[42] Briefly, participants completed an anonymous, web-based survey. The sample was drawn from KnowledgePanel, a survey panel of more than 50,000 US households maintained by Ipsos, a research firm. KnowledgePanel is a probability-based survey panel of a representative sample of US adults that covers approximately 98% of US households. Panel members are recruited through national random samples, originally by telephone and now almost entirely by postal mail. To permit generalizability of results to the US veteran population, poststratification weights using benchmark distributions of US military veterans from the most contemporaneous (August 2019) Veterans Supplement of the US Census Bureau Current Population Survey[43] were applied in all inferential analyses. All procedures were approved by the Human Subjects Committee of the VA Connecticut Healthcare System, and all participants provided electronic informed consent.

Measures

Table 1 provides descriptions of all study measures. The sample was stratified into younger (ie, <50 years old; mean = 39.3, SD = 6.3, range = 22–49) and older (ie, ≥50 years old; mean = 69.0, SD = 10.4, range = 50–99) veterans.

Data Analysis

Data analyses proceeded in 4 steps. First, descriptive statistics were computed to summarize all of the study variables. Second, sociodemographic, trauma, and social variables that were examined as potential mediators were compared by current PTSD screening status, which was operationalized on the basis of a score of 31 or higher on the PTSD Checklist for *DSM-5*.[48] Third, we conducted a bias-corrected bootstrap test of mediation to evaluate potential sociodemographic, trauma, and social mediators of the association between age and PTSD. This analysis, which produced robust and accurate estimates of mediation effects even in the context of complex data structures and non-normal distributions, controlled for sex, race and ethnicity, marital/partnered status, employment status, household income, years of military service, and combat veteran status. We employed a nonparametric bootstrapping procedure (10,000 samples) to generate estimates of direct and indirect effects, and confidence intervals. Fourth, planned post hoc analyses were conducted to identify component variables of multiindicator variables (eg, trauma exposure) that mediated the association between age and PTSD prevalence. All inferential analyses incorporated poststratification weights to ensure generalizability of study results to the general US veteran population.

RESULTS

Sample Characteristics

Table 2 summarizes the sociodemographic, trauma-related, and psychosocial characteristics of the sample by age. Tables 3 and 4 show these characteristics in each age group by PTSD screening status. As shown in Table 2, relative to older veterans, younger veterans were more likely to be female, Black or Hispanic, employed, unemployed/disabled, to have enlisted, served 4–9 years in the military, and experienced combat. They were less likely to be White, married/partnered, retired, or to have been drafted and served 3 years or fewer in the military. With regard to trauma-related characteristics, younger veterans reported a greater number of ACEs, direct and indirect potentially traumatic events, combat exposure severity, and were more likely to endorse MST. With respect to index traumatic events, interpersonal violence and combat/captivity were more frequently reported by younger than older veterans, whereas disaster- or accident-related events were less commonly reported. In terms of psychosocial characteristics, younger veterans endorsed using more avoidance coping, and fewer self-sufficient coping strategies to manage PTSD symptoms related to their index event. Younger veterans also scored higher on measures of loneliness and psychosocial difficulties and lower on measures of resilience, purpose in life, social network size, and social support.

Mediation Results

Younger veterans were 3 times more likely than older veterans to screen positive for PTSD, N = 71 (weighted 14.7%) vs N = 169 (weighted 4.9%), $\chi^2 = 102.93$, $P < .001$. However, the direct effect of younger age in predicting a positive screen for PTSD was no longer statistically significant after accounting for indirect effects of trauma and psychosocial variables (B = 0.12, SE = 0.21, $P = .57$). Collectively, the indirect effect of these factors accounted for 90.0% of the total effect of younger age in predicting PTSD, with psychosocial difficulties (42.9% of indirect effect), loneliness (23.6% of indirect effect), avoidance coping (9.7% of indirect effect), ACEs (9.5% of indirect effect), and combat exposure severity (4.2% of indirect effect) indirectly mediating this association. Figure 1 shows a figure of the final path model of factors that indirectly mediated the relationship between younger age and PTSD screening status.

Planned post hoc analyses revealed that certain psychosocial difficulties, avoidant coping strategies, ACEs, and combat exposures, which were more prevalent/

Table 1.

Description of Study Measures

Measure	Description
Adverse childhood experiences	Total score on Adverse Childhood Experiences Questionnaire,[13] a 10-item questionnaire in 7 categories of childhood exposure to adverse experiences (eg, psychological, physical, or sexual abuse; violence against mother; or living with household members who had a substance use problem, mental illness, or suicidal behavior, or were ever imprisoned)
Lifetime trauma exposure	Total score on Life-Events Checklist-5[44] was used to measure exposure to 16 events that may potentially result in PTSD or distress, with an additional item assessing any other stressful event not captured in the 16 items
Combat exposure	Combat exposure severity was assessed using the Combat Exposure Scale.[45] Combat exposure was defined with the following questions "Have you ever served in a combat or war zone?" If affirmatively endorsed, a follow-up question asked: "In which war era did you serve?" with the response options including all major war eras
Military sexual trauma	Endorsement of either of 2 items from the VHA Military Sexual Trauma Screen[46] assessing for exposure to military sexual harassment and military sexual assault was considered a positive screen for military sexual trauma. Military sexual harassment was assessed using an item which asked, "When you were in the military, did you ever receive unwanted, threatening, or repeated sexual attention?" Military sexual assault was assessed using an item which asked, "When you were in the military, did you have sexual contact against your will or when you were unable to say no?"
Current PTSD	Score of ≥31 on PTSD Checklist for *DSM-5*,[47,48] which assesses past-month severity of PTSD symptoms in relation to each respondent's "worst" Criterion A trauma on the LEC-5.[44] Cronbach α = .96
Resilience	Score on Connor-Davidson Resilience Scale-10.[49] The Connor-Davidson Resilience Scale-10 is a brief, 10-item self-report questionnaire used to assess resilience, or an individual's ability to adapt to stress and adversity. It measures key aspects of resilience, such as adaptability, problem-solving, and emotional regulation, with higher scores indicating greater resilience. Cronbach α = .90
Purpose in life	Purpose in life was assessed using the Purpose in Life Test-Short Form,[50] a 4-item self-report measure designed to assess an individual's sense of purpose and meaning in life. It evaluates aspects such as goal-directedness, life satisfaction, and existential fulfilment, with higher scores reflecting a stronger sense of purpose. Cronbach α = .88
Coping strategies	As in previous NHRVS studies, veterans were asked to rank 3 out of 14 coping strategies from the Brief COPE instrument[51] that they "most commonly use" to deal with symptoms related to their LEC-5–identified most distressing traumatic event.[44] Based on prior research that has identified a 3-factor structure for the Brief COPE,[52] the 14 coping strategies were categorized into 3 coping styles for the current study: self-sufficient coping (ie, autonomous problem- and emotion-focused strategies: planning, active coping, positive reframing, acceptance, humor, and religion), socially supported coping (ie, help-seeking strategies: emotional support, instrumental support, and venting), and avoidant coping (ie, disengagement-based strategies: self-distraction, denial, substance use, behavioral disengagement, and self-blame)
Social network size	Assessed using the first item of the Medical Outcomes Study Social Support Scale,[53] which quantifies the number of people an individual feels they can rely on for support: "About how many close friends and relatives do you have (people you feel at ease with and can talk to about what is on your mind)?" It reflects the breadth of one's social connections, with larger network sizes indicating greater social network size
Perceived social support	Perceived social support was assessed using a modified 5-item version of the Medical Outcomes Study Social Support Scale.[53] Perceived social support, scored on a 5-item scale, assesses the extent to which individuals believe their social relationships provide emotional, informational, and tangible support when needed. Cronbach α = .89
Loneliness	Score on 3-item measure adapted from the UCLA Loneliness Scale.[54] The 3-item UCLA Loneliness Scale is a brief self-report measure used to assess perceived social isolation and feelings of loneliness. It evaluates how often individuals feel left out, isolated, or lacking companionship, with higher scores indicating greater loneliness. Cronbach α = .87
Psychosocial difficulties	Psychosocial difficulties were assessed using The Brief Inventory of Psychosocial Functioning Scale,[55] a self-report measure that assesses past-month difficulties in various psychosocial domains, such as work, relationships, and daily activities. Only domains relevant to the respondent are answered. Cronbach α = .83

severe among younger than older veterans, mediated the association between younger age and PTSD. Specific psychosocial difficulties included challenges with friendships and socializing (M = 1.3 ± 1.7 vs 0.5 ± 1.1; B = 0.12, SE = 0.06), extended family relationships (M = 1.4 ± 1.8 vs 0.5 ± 1.1; B = 0.11, SE = 0.06), spouse or partner relationships (M = 1.7 ± 1.8 vs 0.8 ± 1.3; B = 0.11, SE = 0.03), daily activities (M = 1.3 ± 1.7 vs 0.8 ± 1.4; B = 0.08, SE = 0.03), and training and education (M = 0.7 ± 1.4 vs 0.2 ± 0.7; B = 0.07, SE = 0.05). Specific avoidance coping strategies included substance use (20.1% vs 10.8%; B = 1.09, SE = 0.23) and self-blame (11.2% vs 6.1%; B = 1.26, SE = 0.26); ACEs included physical abuse (24.4% vs 15.4%; B = 0.50, SE = 0.18); and combat exposures included frequency of seeing someone hit by incoming or outgoing rounds (M = 2.6 ± 2.6 vs 2.2 ± 2.5; B = 0.14, SE = 0.05).

DISCUSSION

To our knowledge, this study is the first to examine the role of trauma-specific and psychosocial factors as potential mediators of the well-established association between younger age and higher PTSD prevalence in US military veterans. Younger veterans were nearly 3 times more likely to screen positive for past-month PTSD than older veterans, consistent with prior research

Table 2.

Sample Characteristics Between Younger and Older US Military Veterans, and Results of Mediation Model[a]

Characteristic	Younger veterans N = 467 (weighted 22.8%), Weighted mean (SD) or N (weighted %)	Older veterans N = 3,602 (weighted 77.2%), Weighted mean (SD) or N (weighted %)	Bivariate test of difference *t* or χ^2	*P* value	Pairwise contrast	
Sociodemographic characteristics						
Age	39.3 (6.3)	69.0 (10.4)	107.00	<.001	O > Y	
Male sex	322 (79.0%)	3,242 (93.5%)	172.21	<.001	O > Y	
Race/ethnicity			133.62	<.001		
White, non-Hispanic	308 (67.3%)	3,010 (81.3%)			O > Y	
Black, non-Hispanic	54 (13.6%)	242 (10.5%)			Y > O	
Hispanic	86 (14.3%)	224 (4.3%)			Y > O	
Other	19 (4.8%)	129 (3.9%)			–	
College degree or higher education	199 (34.1%)	1,628 (32.3%)	1.02	.31	–	
Married/partnered	315 (69.3%)	2,570 (73.4%)	5.92	.015	O > Y	
Employment status			848.24	<.001		
Working	382 (81.8%)	1,229 (38.3%)			Y > O	
Retired	16 (2.8%)	2,209 (56.6%)			O > Y	
Unemployed/disabled	69 (15.4%)	164 (5.1%)			Y > O	
Annual household income >$60K	296 (61.4%)	2,061 (57.7%)	4.11	.043	O > Y	
Method of military service entry			132.93	<.001		
Enlisted	428 (91.0%)	2,700 (76.4%)			Y > O	
Drafted	2 (0.9%)	479 (13.9%)			O > Y	
Commissioned	36 (8.1%)	416 (9.7%)			–	
Years of military service			69.75	<.001		
3 or less	122 (27.2%)	1,390 (40.1%)			O > Y	
4–9	248 (53.5%)	1,418 (38.7%)			Y > O	
10+	97 (19.3%)	794 (21.2%)			–	
Combat veteran	218 (51.5%)	1,135 (30.1%)	143.47	<.001	Y > O	
Trauma characteristics						
Adverse childhood experiences	2.2 (2.3)	1.3 (1.8)	10.31	<.001	Y > O	0.075[b]
Direct potentially traumatic events	3.5 (2.8)	3.1 (2.4)	4.03	<.001	Y > O	−0.016
Indirect potentially traumatic events	7.4 (8.5)	5.2 (6.6)	7.25	<.001	Y > O	0.003
Combat exposure severity	6.0 (9.1)	3.0 (6.9)	9.39	<.001	Y > O	0.039[b]
Military sexual trauma	93 (15.4%)	228 (5.1%)	108.60	<.001	Y > O	0.027
Index traumatic event			72.71	<.001		
Interpersonal violence	98 (21.8%)	385 (12.0%)			Y > O	−0.009
Illness/injury	105 (27.7%)	947 (29.6%)			…	…
Disaster/accident	137 (33.8%)	1,387 (45.3%)			O > Y	−0.011
Combat/captivity	57 (16.4%)	391 (12.1%)			Y > O	0.016
Injury/harm/death to other	1 (0.3%)	32 (1.0%)			…	…
Psychosocial characteristics						
Resilience	38.0 (7.6)	39.4 (6.5)	5.23	<.001	O > Y	0.054
Purpose in life	19.5 (5.5)	21.7 (4.5)	10.96	<.001	O > Y	−0.004
Self-sufficient coping strategies	1.6 (0.8)	1.9 (0.9)	7.35	<.001	O > Y	0.070
Socially supportive coping strategies	0.7 (0.7)	0.6 (0.7)	2.67	.008	Y > O	0.012
Avoidance coping strategies	0.5 (0.7)	0.3 (0.6)	7.95	<.001	Y > O	0.150[b]
Social network size	5.6 (7.1)	8.9 (11.7)	10.41	<.001	O > Y	−0.018
Social support	17.2 (5.4)	19.0 (5.0)	8.79	<.001	O > Y	−0.032
Loneliness	5.6 (2.0)	4.4 (1.7)	16.88	<.001	Y > O	0.280[b]
Psychosocial difficulties	20.9 (20.8)	8.3 (12.8)	17.34	<.001	Y > O	0.465[b]

[a]Indirect effects are adjusted for sex, race and ethnicity, marital/partnered status, employment status, household income, years of military service, and combat veteran status.
[b]Statistically significant indirect effect, $P < .05$.
Abbreviations: O = older veterans, SD = standard deviation, SE = standard error, Y = younger veterans.

documenting age-related differences in the PTSD prevalence among veterans.[1,2,5,6,21] Younger veterans were also more likely to be female, Black or Hispanic, and either employed or disabled/unemployed. They reported higher rates of ACEs, severe combat trauma, MST, interpersonal violence, and captivity-related trauma. Psychosocial difficulties, loneliness, and avoidant coping emerged as the strongest mediators of relationship between younger age and increased PTSD prevalence.

Table 3.

Sample Characteristics Between Younger (<50 years) US Military Veterans With and Without Positive Screen for PTSD

	No PTSD N = 396 (weighted 85.3%), Weighted mean (SD) or N (weighted %)	PTSD N = 71 (weighted 14.7%), Weighted mean (SD) or N (weighted %)	Bivariate test of difference t or χ^2	P value	Pairwise contrast
Sociodemographic characteristics					
Age	39.5 (6.3)	38.3 (6.5)	1.91	.058	–
Male sex	281 (80.6%)	41 (69.9%)	8.01	.005	No PTSD > PTSD
Race/ethnicity			3.95	.27	
White, non-Hispanic	262 (66.2%)	46 (73.6%)			–
Black, non-Hispanic	46 (13.5%)	8 (13.2%)			–
Hispanic	73 (15.0%)	13 (10.3%)			–
Other	15 (5.2%)	4 (2.9%)			–
College degree or higher education	170 (35.2%)	29 (26.5%)	3.97	.046	No PTSD > PTSD
Married/partnered	272 (70.8%)	43 (59.9%)	6.61	.010	No PTSD > PTSD
Employment status			46.80	<.001	
Working	338 (85.1%)	44 (62.2%)			No PTSD > PTSD
Retired	10 (1.8%)	6 (8.9%)			PTSD > No PTSD
Unemployed/disabled	48 (13.1%)	21 (28.9%)			PTSD > No PTSD
Annual household income >$60K	257 (63.1%)	39 (51.5%)	6.66	.010	No PTSD > PTSD
Method of military service entry			2.59	.27	
Enlisted	361 (90.4%)	67 (94.1%)			–
Drafted	2 (1.0%)	0 (0%)			–
Commissioned	33 (8.6%)	3 (5.9%)			–
Years of military service			3.02	.22	
3 or less	96 (26.1%)	26 (33.1%)			–
4–9	216 (54.5%)	32 (47.8%)			–
10+	84 (19.4%)	13 (19.1%)			–
Combat veteran	184 (50.3%)	34 (58.1%)	2.81	.094	–
Trauma characteristics					
Adverse childhood experiences	1.9 (2.1)	3.4 (2.8)	5.77	<.001	PTSD > No PTSD
Direct potentially traumatic events	3.2 (2.7)	5.5 (2.9)	8.40	<.001	PTSD > No PTSD
Indirect potentially traumatic events	7.2 (8.2)	9.4 (9.9)	2.38	.018	PTSD > No PTSD
Combat exposure severity	5.7 (8.8)	7.6 (10.4)	2.22	.027	PTSD > No PTSD
Military sexual trauma	59 (10.8%)	34 (41.9%)	86.56	<.001	PTSD > No PTSD
Index traumatic event			33.47	<.001	
Interpersonal violence	76 (19.6%)	22 (34.5%)			PTSD > No PTSD
Illness/injury	89 (28.4%)	16 (23.3%)			–
Disaster/accident	128 (37.0%)	9 (15.5%)			No PTSD > PTSD
Combat/captivity	43 (14.7%)	14 (26.7%)			PTSD > No PTSD
Injury/harm/death to other	1 (0.3%)	0 (0%)			–
Psychosocial characteristics					
Resilience	38.8 (7.0)	33.2 (9.2)	6.63	<.001	No PTSD > PTSD
Purpose in life	20.2 (5.0)	16.3 (6.2)	6.81	<.001	No PTSD > PTSD
Self-sufficient coping strategies	1.7 (0.8)	1.3 (0.9)	5.03	<.001	No PTSD > PTSD
Socially-supportive coping strategies	0.7 (0.7)	0.6 (0.7)	0.76	0.45	–
Avoidance coping strategies	0.4 (0.6)	0.9 (0.7)	7.26	<.001	PTSD > No PTSD
Social network size	5.8 (6.9)	4.4 (8.5)	1.85	.065	–
Social support	17.8 (5.4)	13.9 (4.7)	8.56	<.001	No PTSD > PTSD
Loneliness	5.3 (1.9)	7.3 (1.7)	11.80	<.001	PTSD > No PTSD
Psychosocial difficulties	16.6 (17.5)	46.1 (20.9)	15.28	<.001	PTSD > No PTSD

Abbreviations: PTSD = posttraumatic stress disorder, SD = standard deviation.

Psychosocial difficulties were the strongest mediator between younger age and PTSD, accounting for 42.9% of the total indirect effect. In particular, relationship problems with friends, family, and significant others largely explained this association. This finding aligns with previous research on interpersonal challenges in PTSD, including studies of younger veterans,[56–58] as well as veterans from earlier war eras.[59–62] Similar patterns have also been observed among sexual assault survivors and individuals with chronic PTSD.[63] Veterans with PTSD often struggle with maintaining healthy relationships due to avoidance, emotional numbing, and hyperarousal

Table 4.

Sample Characteristics Between Older (50+ Years) US Military Veterans With and Without Positive Screen for PTSD

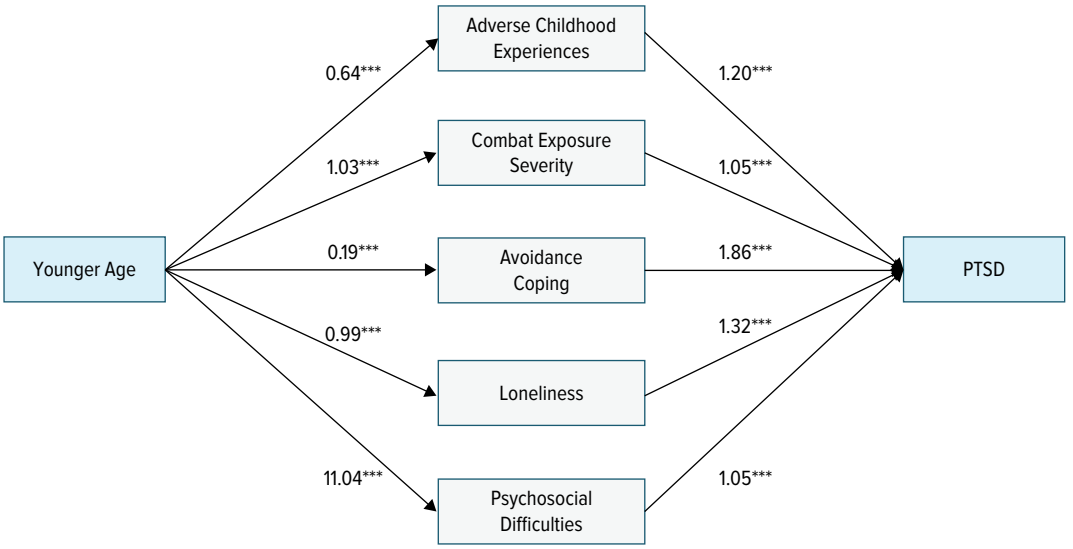
	No PTSD N = 3,433 (weighted 95.1%), Weighted mean (SD) or N (weighted %)	PTSD N = 169 (weighted 4.9%), Weighted mean (SD) or N (weighted %)	Bivariate test of difference t or χ^2	*P* value	Pairwise contrast
Sociodemographic characteristics					
Age	69.1 (10.2)	61.6 (8.8)	10.02	<.001	No PTSD > PTSD
Male sex	3,109 (93.9%)	133 (86.5%)	13.54	<.001	No PTSD > PTSD
Race/ethnicity			30.45	<.001	
White, non-Hispanic	2,891 (81.9%)	119 (65.2%)			No PTSD > PTSD
Black, non-Hispanic	217 (9.9%)	25 (21.9%)			PTSD > No PTSD
Hispanic	206 (4.3%)	15 (5.8%)			–
Other	119 (3.8%)	10 (7.1%)			PTSD > No PTSD
College degree or higher education	1,574 (32.8%)	54 (21.4%)	8.70	.003	No PTSD > PTSD
Married/partnered	2,460 (73.6%)	110 (68.8%)	1.69	.19	–
Employment status			37.10	<.001	
Working	1,173 (38.3%)	56 (38.1%)			–
Retired	2,116 (57.1%)	93 (46.4%)			No PTSD > PTSD
Unemployed/disabled	144 (4.6%)	20 (15.5.%)			PTSD > No PTSD
Annual household income >$60K	1,985 (58.4%)	76 (44.2%)	12.15	<.001	No PTSD > PTSD
Method of military service entry			20.75	<.001	
Enlisted	2,546 (75.6%)	154 (91.6%)			PTSD > No PTSD
Drafted	470 (14.4%)	9 (4.5%)			No PTSD > PTSD
Commissioned	413 (10.0%)	6 (3.9%)			No PTSD > PTSD
Years of military service			2.73	.26	
3 or less	1,330 (40.3%)	60 (34.8%)			–
4–9	1,351 (38.7%)	67 (39.4%)			–
10+	752 (21.0%)	42 (25.8%)			–
Combat veteran	1,060 (29.5%)	75 (42.9%)	12.46	<.001	PTSD > No PTSD
Trauma characteristics					
Adverse childhood experiences	1.2 (1.7)	3.2 (2.7)	8.84	<.001	PTSD > No PTSD
Direct potentially traumatic events	3.0 (2.3)	5.6 (2.6)	10.85	<.001	PTSD > No PTSD
Indirect potentially traumatic events	5.1 (6.4)	9.1 (10.4)	4.65	<.001	PTSD > No PTSD
Combat exposure severity	2.7 (6.5)	6.7 (10.1)	4.76	<.001	PTSD > No PTSD
Military sexual trauma	189 (4.4%)	39 (18.8%)	62.85	<.001	PTSD > No PTSD
Index traumatic event			106.56	<.001	
Interpersonal violence	344 (11.1%)	41 (31.7%)			PTSD > No PTSD
Illness/injury	915 (30.2%)	32 (18.3%)			No PTSD > PTSD
Disaster/accident	1,362 (46.4%)	25 (19.8%)			No PTSD > PTSD
Combat/captivity	355 (11.5%)	36 (25.4%)			PTSD > No PTSD
Injury/harm/death to other	24 (0.8%)	8 (4.8%)			PTSD > No PTSD
Psychosocial characteristics					
Resilience	39.7 (6.3)	32.5 (8.0)	10.89	<.001	No PTSD > PTSD
Purpose in life	21.9 (4.3)	17.1 (6.2)	9.26	<.001	No PTSD > PTSD
Self-sufficient coping strategies	1.9 (0.8)	1.2 (0.8)	10.36	<.001	No PTSD > PTSD
Socially supportive coping strategies	0.6 (0.7)	0.8 (0.7)	3.55	<.001	PTSD > No PTSD
Avoidance coping strategies	0.2 (0.5)	0.9 (0.8)	9.63	<.001	PTSD > No PTSD
Social network size	9.0 (11.6)	4.7 (7.5)	6.58	<.001	No PTSD > PTSD
Social support	19.1 (4.9)	15.0 (5.7)	8.75	<.001	No PTSD > PTSD
Loneliness	4.3 (1.7)	6.7 (1.9)	14.61	<.001	PTSD > No PTSD
Psychosocial difficulties	7.2 (11.1)	30.5 (22.5)	12.59	<.001	PTSD > No PTSD

Abbreviations: PTSD = posttraumatic stress disorder, SD = standard deviation.

symptoms, which can exacerbate interpersonal conflicts.[64] Difficulties with emotional regulation may further contribute to these challenges.[65] Younger veterans report particularly high levels of relationship distress, including communication problems and emotional intimacy issues.[66,67] These findings highlight the importance of clinical interventions that address psychosocial difficulties in younger veterans with PTSD. While trauma-focused interventions such as prolonged exposure and eye movement desensitization and reprocessing effectively address traumatic stress,[68] they may not fully resolve relationship challenges. Alternative

Figure 1.

Path Model of Factors That Indirectly Mediated the Association Between Younger Age and PTSD Screening Status[a]



[a]Values from younger age to mediating variables are unstandardized linear coefficients, while values from mediating variables to PTSD are odds ratios. Model is adjusted for sex, race and ethnicity, marital/partnered status, employment status, household income, years of military service, and combat veteran status.
Abbreviation: PTSD = posttraumatic stress disorder.
***Statistically significant association, $P < .001$.

approaches, such as acceptance and commitment therapy, have shown promise in improving veterans' social relationships by promoting acceptance and value-driven behavior.[69] Additionally, cognitive-behavioral conjoint therapy has demonstrated benefits for PTSD symptoms, trauma-related cognitions, posttraumatic growth, parenting competence, and relationship satisfaction.[70]

Loneliness was the second strongest mediator of the relationship between younger age and PTSD prevalence, accounting for 23.6% of the total indirect effect. Although research on loneliness and PTSD in younger veterans is limited, our findings align with recent studies showing that younger veterans with PTSD report greater loneliness than their older counterparts.[40] One possible explanation is that younger veterans with PTSD may struggle with interpersonal relationships and forming meaningful connections,[64,66,67] which leads to reduced social connectedness. This, in turn, may contribute to a cycle in which loneliness exacerbates PTSD symptoms[71,72] and promotes social withdrawal, a form of avoidant coping that has been linked to loneliness.[73] While randomized clinical trials targeting loneliness among veterans with PTSD are scarce, traditional psychotherapies, such as cognitive behavioral therapy, may be complemented by social interventions such as peer support groups,[74–76] social prescribing programs (eg, VA Compassionate Contact Corps),[77] and animal-assisted therapy, which may may help restore social connections, reduce isolation, and enhance overall well-being.[78,79]

Avoidance coping was the third strongest mediator of the relationship between younger age and PTSD prevalence, accounting for 9.7% of the total indirect effect. Younger veterans were more likely than older veterans to employ maladaptive coping strategies such as substance use (20.1% vs 10.8%) and self-blame (11.2% vs 6.1%) to manage their PTSD symptoms. These findings align with prior research showing that avoidance coping is common among veterans with PTSD, particularly those who are younger and may use these strategies to manage distressing trauma-related thoughts and emotions.[80] Although avoidance may temporarily relieve distress, it can worsen PTSD symptoms over time by perpetuating a cycle of distress and avoidance.[31–35] Younger veterans' reliance on avoidance coping may be influenced by factors such as ACEs and combat trauma. For example, childhood emotional neglect and sexual abuse are strongly associated with avoidance coping.[30] Combat exposure may further contribute to maladaptive avoidance coping, as it is strongly linked to PTSD onset and symptom exacerbation in military personnel and veterans.[20] Addressing avoidance coping is critical, as it can hinder treatment engagement and outcomes. Trauma-informed therapies that target ACEs and combat trauma can help veterans reduce avoidance behaviors and process underlying trauma. For instance, Seeking Safety, a cognitive-behavioral therapy for

co-occurring PTSD and substance use, has been shown to effectively reduce PTSD symptoms and substance use problems in younger veterans.[81,82] Tailored interventions combining these approaches may help improve outcomes for younger veterans with co-occurring PTSD and maladaptive coping strategies, though further research is needed to evaluate their effectiveness.

This study has several limitations. First, the cross-sectional design limits the ability to infer temporal or causal relationships. Second, reliance on self-reported measures and screening tools rather than clinical interviews may introduce biases and limit the accuracy of trauma exposure and PTSD assessments. Relatedly, some trauma exposure measures used (eg, Life Events Checklist for *DSM-5*) have limited capacity to quantify the intensity and duration of certain events (eg, combat exposure); thus, further research with more nuanced measures is needed to better understand how such exposures may mediate the relationship between age and PTSD. Third, although weighted analyses were employed to enhance generalizability, the sample was skewed older, and findings may not fully extend to more diverse subsets of the US veteran population, particularly younger veterans who were relatively underrepresented in the sample. Fourth, mortality bias may partly explain the lower PTSD rates observed among older veterans, as those with more severe symptoms may have experienced premature death.[83] These limitations highlight the need for longitudinal studies, comprehensive assessment methods, and subgroup analyses to better clarify potential mediators of the relationship between younger age and greater PTSD prevalence.

CONCLUSION

Despite the limitations noted above, this study identified several key factors that may contribute to the higher prevalence of PTSD among younger veterans compared to older veterans, highlighting the significant roles of psychosocial difficulties, loneliness, and avoidance coping. Younger veterans were more likely to experience interpersonal difficulties, lower levels of social support, and higher rates of trauma exposure, including ACEs, severe combat exposure, and MST. Psychosocial challenges and avoidance coping mechanisms—particularly substance use and self-blame—significantly mediated the relationship between younger age and greater PTSD prevalence. These findings underscore the importance of addressing social relationship difficulties, loneliness, and maladaptive coping strategies in the prevention and treatment of PTSD among younger veterans. Further research is needed to examine longitudinal mediators of the relationship between younger age and PTSD, as well as to evaluate the effectiveness of interventions targeting these key mediators in reducing PTSD symptoms in this population.

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