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Exposure to Bullying or Hazing During Deployment and Mental Health Outcomes Among US Army Soldiers

Laura Campbell-Sills, PhD; Xiaoying Sun, MS; Ronald C. Kessler, PhD; Robert J. Ursano, MD; Sonia Jain, PhD; Murray B. Stein, MD, MPH

Abstract

IMPORTANCE Workplace bullying is associated with mental disorders and suicidality in civilians, but few studies have examined associations of bullying with these outcomes among military personnel.

OBJECTIVE To evaluate associations of being bullied or hazed during deployment with major depressive disorder (MDD), intermittent explosive disorder, posttraumatic stress disorder (PTSD), suicidal ideation, and substance use disorder (SUD).

DESIGN, SETTING, AND PARTICIPANTS This cohort study used data from the Army Study to Assess Risk and Resilience in Servicemembers (Army STARRS) New Soldier Study (NSS; April 1, 2011, to November 30, 2012) and wave 1 of the STARRS Longitudinal Study (STARRS-LS1; September 1, 2016, to April 30, 2018). A computerized survey administered at 3 US Army installations (NSS) and a web/telephone survey (STARRS-LS1) were used to collect data. Data were analyzed from October 11, 2021, to October 28, 2022. The STARRS-LS1 recruited a probability sample of active-duty soldiers and veterans who had participated in Army STARRS baseline surveys while on active duty (weighted response rate, 35.6%). Respondents whose baseline was the NSS and who had deployed to a combat theater at least once were eligible for this study.

EXPOSURES Being bullied or hazed during a combat deployment.

MAIN OUTCOMES AND MEASURES The primary outcomes were MDD, intermittent explosive disorder, PTSD, and suicidal ideation in the 12 months before STARRS-LS1 and SUD in the 30 days before STARRS-LS1, assessed with items from the Composite International Diagnostic Interview Screening Scales, PTSD Checklist for *Diagnostic and Statistical Manual of Mental Disorders, Fifth Edition*, and Columbia-Suicide Severity Rating Scale. Logistic regression was used to estimate associations of bullying or hazing exposure with the outcomes.

RESULTS The 1463 participants were predominantly male (weighted percentage [SE], 90.4% [0.9%]) and had a mean (SE) age of 21.1 (0.1) years at baseline. At STARRS-LS1, 188 respondents (weighted percentage [SE], 12.2% [1.1%]) reported bullying or hazing during deployment. Weighted outcome prevalences were 18.7% (1.3%) for MDD, 5.2% (0.9%) for intermittent explosive disorder, 21.8% (1.5%) for PTSD, 14.2% (1.2%) for suicidal ideation, and 8.7% (1.0%) for SUD. In models that adjusted for baseline sociodemographic and clinical characteristics and other potential traumas, exposure to bullying or hazing was significantly associated with MDD (adjusted odds ratio [aOR], 2.92; 95% CI, 1.74-4.88), intermittent explosive disorder (aOR, 2.59; 95% CI, 1.20-5.59), PTSD (aOR, 1.86; 95% CI, 1.23-2.83), suicidal ideation (aOR, 1.91; 95% CI, 1.17-3.13), and SUD (aOR, 2.06; 95% CI, 1.15-3.70).

CONCLUSIONS AND RELEVANCE In this cohort study of combat-deployed soldiers, reports of being bullied or hazed during deployment were associated with mental disorders and suicidal

(continued)

Key Points

Question Is being bullied or hazed by fellow unit members during a combat deployment associated with poorer mental health outcomes among US Army soldiers?

Findings This cohort study analyzed data from 1463 combat-deployed soldiers and found that reports of being bullied or hazed during deployment were significantly associated with major depressive disorder, intermittent explosive disorder, posttraumatic stress disorder, suicidal thoughts, and substance use disorder.

Meaning Recognition of the associations between bullying or hazing and mental health conditions can inform efforts to prevent and address these problems in combat-deployed service members.

+ Supplemental content

Author affiliations and article information are listed at the end of this article.

Abstract (continued)

thoughts. Recognition of these associations may inform efforts to prevent and address mental health problems among service members.

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Introduction

Workplace bullying encompasses a variety of threatening, humiliating, and disruptive acts that occur in an occupational setting and are intended to cause physical or psychological harm to the person being bullied.[1] The related phenomenon of hazing involves similar behaviors but with the purported aim of initiating the person being hazed into a group. Prospective studies[2-7] indicate that workplace bullying is associated with onset of mental health problems in civilians. However, few studies have examined associations between bullying or hazing and mental health outcomes among military personnel.

The available data from military samples suggest links between bullying or hazing exposure and problems such as depression, anger, alcohol misuse, and suicidal thoughts.[8-12] However, the extent to which the observed associations reflect influences of concomitant risk factors (eg, preexisting mental health problems or other stressors) is poorly understood. Investigation of whether exposure to bullying or hazing explains unique variance in mental health outcomes of service members could inform efforts to reduce the burden of mental disorders and suicidality in this population.

In support of this aim, the current study examines associations of bullying or hazing with mental health outcomes among combat-deployed soldiers. Deployment is a period characterized by increased stress and diminished access to nonmilitary sources of social support that may protect against adverse outcomes of bullying or hazing.[13] Unit cohesion appears to mitigate the effects of deployment stressors[14]; however, this buffer may be compromised for soldiers who are targets of malicious behavior perpetrated by fellow unit members. Of importance, whereas stressors such as combat are unavoidable for some deployed soldiers, bullying and hazing can be prevented and/or addressed by leaders (ie, they can be intervention targets). These contextual factors provide additional impetus for examining associations between mental health and exposure to bullying or hazing in a deployment setting.

The analyses described in this report specifically evaluate associations between bullying or hazing during deployment and major depressive disorder (MDD), intermittent explosive disorder, posttraumatic stress disorder (PTSD), suicidal ideation, and substance use disorder (SUD) in wave 1 of the Study to Assess Risk and Resilience in Servicemembers (STARRS) Longitudinal Study (STARRS-LS1).[15] The analyses estimate these associations controlling for sociodemographic and clinical characteristics measured in the baseline New Soldier Study (NSS),[16] as well as other potential traumas experienced by soldiers during the follow-up interval. Given the distinctive aspects of bullying or hazing vis-à-vis other military stressors, the hypothesis of this study was that bullying or hazing during deployment would be independently associated with the mental health outcomes.

Methods

Overview and Participants

STARRS-LS recruited a probability sample of soldiers who had participated in components of Army STARRS[16] while on active duty. The first wave of follow-up data collection (STARRS-LS1) occurred from September 1, 2016, to April 30, 2018, with surveys administered via web or telephone (weighted response rate, 35.6%). Data were analyzed from October 11, 2021, to October 28, 2022. STARRS-LS1 participants provided written informed consent, and the study was approved by the human subjects committees of the collaborating institutions. Other information regarding

STARRS-LS1 and the study measures is provided in the eMethods in Supplement 1 and a prior publication.[15] This study followed the Strengthening the Reporting of Observational Studies in Epidemiology (STROBE) reporting guideline.

This study focuses on the subset of the STARRS-LS1 cohort whose baseline was the Army STARRS NSS.[17] The NSS was conducted at 3 US Army installations from April 1, 2011, to November 30, 2012. Consenting soldiers completed a computerized survey before Basic Combat Training that assessed sociodemographic characteristics, lifetime *Diagnostic and Statistical Manual of Mental Disorders, Fourth Edition* mental disorders, and risk/protective factors. The final NSS sample[18] consisted of 38 507 soldiers, 6216 of whom completed the STARRS-LS1 survey. Of these, 1467 reported ever deploying to a combat theater, making them eligible for this study. Four eligible respondents were excluded due to missing bullying or hazing data, resulting in a sample size of 1463. The weighted mean (SE) interval between NSS and STARRS-LS1 surveys was 5.4 (0.03) years. The eMethods in Supplement 1 contains additional information about the study measures.

Measures

Outcomes

The STARRS-LS1 survey evaluated *Diagnostic and Statistical Manual of Mental Disorders, Fifth Edition* mental disorders with items adapted from the Composite International Diagnostic Interview Screening Scales (CIDI-SC)[19] and PTSD Checklist for *DSM-5* (PCL-5).[20] Suicidal ideation was assessed using an expanded self-report version of the Columbia-Suicide Severity Rating Scale (C-SSRS).[21] The outcomes for this study were MDD, intermittent explosive disorder, PTSD, and suicidal ideation in the 12 months before STARRS-LS1 and SUD in the 30 days before STARRS-LS1 (SUD in the past 12 months was not assessed).

Bullying or Hazing

The STARRS-LS1 survey queried events that occurred "during any deployment you had in a combat theatre since your last interview." For the NSS cohort, this timeframe covered all the soldier's deployments to that point. The item assessing bullying or hazing asked if the respondent had been bullied or hazed by 1 or more members of their unit. Response options on the web survey were 0, 1, 2 to 4, 5 to 9, and 10 or more times, whereas options on the telephone interview were yes or no. For harmonization purposes, all responses to the bullying or hazing item were coded as 0 (0 times/no) or 1 (≥1 time/yes).

Other Potential Traumas

The STARRS-LS1 survey also assessed exposure to combat stressors, sexual assault during deployment, physical assault during deployment, and potential traumas that occurred outside deployments. Six trauma exposure variables were derived for logistic regression analysis: a combat exposure score (range, 0-11, with 0 indicating no reported exposure to the combat experiences assessed in the survey and 11 indicating reported exposure to all combat experiences assessed in the survey) and binary variables capturing physical assault (while deployed or not), sexual assault (while deployed or not), other life-threatening events (outside deployment), witnessing or being repeatedly exposed to details of traumas that happened to other people (outside deployment), and serious injury or death of a loved one (outside deployment). Two additional binary variables were derived for descriptive purposes. High combat exposure identified respondents scoring in the upper quartile of the combat exposure score distribution (combat exposure score >5). Noncombat trauma exposure identified respondents reporting any physical assault, any sexual assault, other life-threatening events (outside deployment), witnessing or being exposed to details of trauma that happened to others (outside deployment), and serious injury or death of a loved one (outside deployment).

Baseline Mental Health Status and Soldier Characteristics

The NSS survey evaluated lifetime *DSM-IV* mental disorders using items adapted from the CIDI-SC[19] and the PTSD Checklist–Civilian Version (PCL-C)[22] and lifetime suicidal ideation using an expanded self-report version of the C-SSRS.[21] To account for variance in mental health outcomes related to sociodemographic and service characteristics, all multivariable models included age, sex, race and ethnicity, educational level (coded General Educational Development or equivalent, high school diploma, or college degree), and service component (regular US Army, US Army National Guard, or US Army Reserve). These data were collected via self-report in the NSS survey; for race and ethnicity, respondents chose 1 or more options from predetermined categories. Given low endorsement of certain categories, race and ethnicity responses were recoded as Hispanic, non-Hispanic Black, non-Hispanic White, or other (includes American Indian or Alaska Native, Asian, Native Hawaiian or other Pacific Islander, and any other race).

Statistical Analysis

All statistical analyses were conducted in R, version 3.6.1 (R Foundation for Statistical Computing).[23] Weights developed for the NSS and STARRS-LS1 surveys were applied to adjust for nonresponse and for differences between respondents and the population of soldiers they were intended to represent (ie, poststratification weights). Details about the weights are provided elsewhere.[15,24] Differences between respondents who reported vs denied being bullied or hazed during deployment were evaluated using design-based Wald tests and 2-sided, unpaired *t* tests for categorical and continuous variables, respectively. Weights-adjusted logistic regression was used to estimate the associations of exposure to bullying or hazing during deployment with mental health outcomes at STARRS-LS1. Subsequent logistic regression models estimated these associations adjusting for sociodemographic and service characteristics and lifetime history of the outcome at baseline (note that the model of suicidal ideation also adjusted for lifetime MDD at baseline). Final models added adjustment for other potential traumas during the follow-up interval (n = 1431 for these models because 32 respondents were missing data for 1 or more trauma variables). Two-tailed $P < .05$ was considered statistically significant.

Results

The sample comprised 1463 soldiers, of whom 1269 were male (weighted percentage [SE], 90.4% [0.9%]) and 194 were female (weighted percentage [SE], 9.6% [0.9%]), with a mean (SE) age of 21.1 (0.1) years. A total of 222 respondents were Hispanic (weighted percentage [SE], 18.3% [1.3%]), 185 were Black (weighted percentage [SE], 16.2% [1.2%]), 945 were White (weighted percentage [SE], 58.1% [1.7%]), and 111 were of other race or ethnicity (weighted percentage [SE], 7.4% [0.9%]). A majority of respondents had enlisted in the regular Army (n = 1104; weighted percentage [SE], 80.4% [1.6%]). **Table 1** lists the other characteristics of the sample and of the 188 respondents (weighted percentage [SE], 12.2% [1.1%]) who reported that they had been bullied or hazed during a combat deployment. Respondents who reported bullying or hazing during deployment were younger, disproportionately female, more likely to have reported lifetime PTSD and suicidal ideation at baseline, and more likely to have reported several other deployment and nondeployment stressors (Table 1). The **Figure** depicts the co-occurrence of bullying or hazing during deployment with other types of trauma exposure during the follow-up interval.

At the STARRS-LS1 follow-up, weighted percentages (SEs) of 42.1% (1.6%) of respondents were on active duty in the regular US Army, 4.7% (0.7%) were activated guard members or reservists, 21.2% (1.5%) were deactivated guard members or reservists, 27.9% (1.3%) were separated, and 4.1% (0.7%) were retired. Outcome prevalences were 18.7% (1.3%) for MDD, 5.2% (0.9%) for intermittent explosive disorder, 21.8% (1.5%) for PTSD, 14.2% (1.2%) for suicidal ideation, and 8.7% (1.0%) for SUD. **Table 2** summarizes the results of logistic regression models that estimated associations between exposure to bullying or hazing during deployment and the outcomes. In unadjusted models,

bullying or hazing was associated with significantly increased risk of all the mental health outcomes (OR, 3.60 [95% CI, 2.33-5.57] for MDD in the past 12 months; OR, 3.32 [95% CI, 1.40-7.84] for intermittent explosive disorder in the past 12 months; OR, 2.99 [95% CI, 2.04-4.38] for PTSD in the past 12 months; OR, 2.74 [95% CI, 1.83-4.09] for suicidal ideation in the past 12 months; and OR, 2.52

Table 1. Characteristics of the Total Sample and the Group Exposed to Bullying or Hazing During Deployment[a]

Characteristic	Total sample (N = 1463)		Bullied or hazed during deployment (n = 188)		Exposed vs nonexposed	
	Unweighted No.	Weighted % (SE)	Unweighted No.	Weighted % (SE)	F	*P* value
Sex						
Male	1269	90.4 (0.9)	151	84.5 (2.8)	6.23	.01
Female	194	9.6 (0.9)	37	15.5 (2.8)		
Age at baseline, weighted mean (SE), y	NA	21.1 (0.1)	NA	20.6 (0.2)	−2.23	.03
Race and ethnicity						
Hispanic	222	18.3 (1.3)	29	16.6 (3.5)	0.15	.93
Non-Hispanic						
Black	185	16.2 (1.2)	21	17.3 (4.5)		
White	945	58.1 (1.7)	122	57.8 (4.5)		
Other race and ethnicity[b]	111	7.4 (0.9)	16	8.4 (2.3)		
Educational level						
High school diploma	1114	80.9 (1.2)	149	84.7 (2.9)	1.29	.28
GED or equivalent	143	9.8 (0.9)	14	6.6 (2.1)		
College degree	206	9.3 (0.8)	25	8.7 (2.3)		
Service component						
Regular US Army	1104	80.4 (1.6)	147	85.1 (2.8)	1.67	.19
US Army National Guard	224	13.8 (1.3)	27	10.9 (2.5)		
US Army Reserve	135	5.8 (0.7)	14	3.9 (1.2)		
Mental health condition						
Lifetime major depressive disorder at baseline	106	5.6 (0.6)	20	8.7 (2.3)	2.02	.16
Lifetime intermittent explosive disorder at baseline[c]	253	13.3 (0.9)	37	15.3 (2.9)	0.44	.51
Lifetime posttraumatic stress disorder at baseline	196	10.4 (1.0)	39	22.2 (4.0)	9.96	.002
Lifetime suicidal ideation at baseline	276	11.3 (0.7)	52	20.0 (3.3)	7.64	.007
Lifetime substance use disorder at baseline	232	11.6 (0.7)	26	11.6 (2.4)	0.00	.99
Exposure						
Combat exposure, weighted mean (SE)[d]	NA	3.4 (0.1)	NA	4.2 (0.2)	3.24	.002
Physical assault since baseline[e]	51	3.4 (0.6)	16	8.0 (2.5)	4.50	.04
Sexual assault since baseline[f]	48	2.3 (0.4)	21	7.9 (2.0)	10.47	.002
Other life-threatening event since baseline[g]	298	20.3 (1.5)	61	30.4 (4.9)	5.17	.03
Exposed to others' trauma since baseline[g]	403	30.5 (1.7)	72	40.1 (4.6)	5.10	.03
Injury or death of loved one since baseline[g]	263	19.5 (1.4)	48	26.2 (5.0)	2.43	.12

Abbreviations: GED, General Educational Development; NA, not applicable (characteristic is a continuous variable).

[a] Data are presented as indicated in the column headings except for age at baseline and combat exposure, which are presented as weighted mean (SE) with a *t* value rather than an F value reported.

[b] Includes Asian, American Indian/Alaska Native, Native Hawaiian/other Pacific Islander, and other. Respondents selecting *other* were given an opportunity to provide their own description of their race and ethnicity.

[c] Due to differences in the *Diagnostic and Statistical Manual of Mental Disorders, Fourth Edition* (baseline) and *Diagnostic and Statistical Manual of Mental Disorders, Fifth Edition* (follow-up) definitions of intermittent explosive disorder, this estimate is not directly comparable to the prevalence estimate for 12-month intermittent explosive disorder at the Study to Assess Risk and Resilience in Servicemembers Longitudinal Study wave 1 follow-up (reported in Results).

[d] The range of the combat exposure score was 0 to 11, with 0 indicating no reported exposure to the combat experiences assessed in the survey and 11 indicating reported exposure to all combat experiences assessed in the survey. Twenty-seven respondents were missing responses on 1 or more combat exposure items; thus, the reported estimates are based on sample sizes of 1436 in the total sample and 181 in the bullied or hazed group.

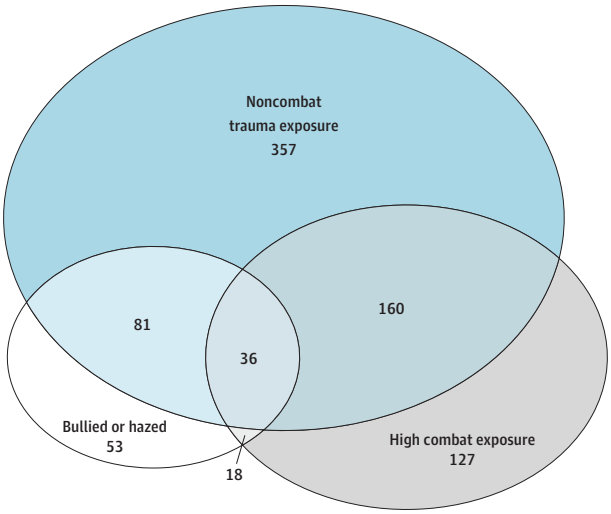
[e] Three respondents were missing responses to 1 or both physical assault items; thus, the reported estimate is based on sample sizes of 1460 in the total sample and 187 in the bullied or hazed group. Prevalence was higher in the bullied or hazed group vs the nonexposed group for physical assaults that occurred during deployment (3.9% vs 1.1%; F = 3.65, *P* = .06) as well as outside deployment (5.8% vs 1.9%; F = 3.33, *P* = .07).

[f] Three respondents were missing responses to 1 or both sexual assault items (none of whom reported bullying or hazing exposure); thus, the reported estimate is based on a total sample size of 1460. Prevalence was significantly higher in the bullied or hazed group vs the nonexposed group for sexual assaults that occurred during deployment (5.7% vs 0.7%; F = 9.06, *P* = .003) as well as outside deployment (5.1% vs 1.3%; F = 7.94, *P* = .006).

[g] Refers to events that occurred outside deployment periods.

[95% CI, 1.30-4.88] for SUD in the past 30 days) (Table 2). Some attenuation of these associations occurred when controls were added for baseline sociodemographic and clinical characteristics and for other potential traumas that had occurred during the follow-up interval. However, as indicated in Table 2, reports of bullying or hazing during deployment remained significantly associated with all outcomes, even in the fully adjusted models. Detailed results of the fully adjusted models are provided in eTables 1 to 5 in Supplement 1.

Figure. Co-occurrence of Bullying or Hazing Exposure During Deployment and Other Postenlistment Trauma Exposure



The sizes of the circles and overlapping areas are proportional to the number of participants reporting the indicated exposure(s).

Table 2. Associations of Exposure to Bullying or Hazing During Deployment With Mental Health Outcomes at the Study to Assess Risk and Resilience in Servicemembers Longitudinal Study Wave 1 Follow-up

Outcome	Odds ratios for bullying or hazing exposure (95% CI)		
	Unadjusted	Adjusted for baseline factors[a]	Adjusted for baseline factors and other trauma exposures[b]
Major depressive disorder in the past 12 mo	3.60 (2.33-5.57)[c]	3.61 (2.33-5.60)[c]	2.92 (1.74-4.88)[c]
Intermittent explosive disorder in the past 12 mo	3.32 (1.40-7.84)[d]	3.34 (1.44-7.76)[d]	2.59 (1.20-5.59)[e]
Posttraumatic stress disorder in the past 12 mo	2.99 (2.04-4.38)[c]	2.47 (1.66-3.67)[c]	1.86 (1.23-2.83)[d]
Suicidal ideation in the past 12 mo	2.74 (1.83-4.09)[c]	2.55 (1.66-3.92)[c]	1.91 (1.17-3.13)[e]
Substance use disorder in the past 30 d	2.52 (1.30-4.88)[d]	2.62 (1.38-4.98)[d]	2.06 (1.15-3.70)[e]

[a] Age, sex, race and ethnicity, educational level, service component, and lifetime history of the specified mental health condition as reported in the baseline survey (New Soldier Study). In addition to these characteristics, the model of suicidal ideation adjusted for lifetime major depressive disorder at baseline.

[b] Combat stressors (scale, 0-11, with 0 indicating no reported exposure to the combat experiences assessed in the survey and 11 indicating reported exposure to all combat experiences assessed in the survey), physical assault, sexual assault, other life-threatening experiences, serious injury or death of a close loved one, and witnessing or being repeatedly exposed to details of trauma that happened to other people. Sample size was 1431 for the models that adjusted for other trauma exposures because 32 respondents were missing data for 1 or more of these variables.

[c] $P < .001$.

[d] $P < .01$.

[e] $P < .05$.

Discussion

In this cohort study of combat-deployed soldiers, reports of having been bullied or hazed by fellow unit members during deployment were associated with mental disorders and suicidal ideation at the STARRS-LS1 follow-up. These associations partly reflected that bullying or hazing and other potential traumas (eg, combat exposure and sexual assault) were highly intercorrelated and explained common variance in mental health outcomes. Nevertheless, bullying or hazing during deployment displayed independent associations with all study outcomes, including MDD, intermittent explosive disorder, PTSD, suicidal ideation, and SUD. Although causality cannot be assumed, these results raise the possibility that US Army policies and programs (eg, leader trainings) that aim to eradicate bullying and hazing may help reduce mental disorders and suicidality among soldiers.

Bullying or hazing displayed a particularly strong association with MDD in the past 12 months at the STARRS-LS1 follow-up. Interpersonal problems are a common antecedent of MDD,[25] and aspects of bullying or hazing (eg, social rejection, humiliation) might trigger or exacerbate depressed mood in vulnerable individuals.[26,27] Other data suggest that depressed mood may at times elicit social rejection or relationship stress,[28] potentially fostering a vicious cycle in which interpersonal problems and depression worsen over time. Although our models controlled for lifetime MDD at baseline, depression may have predated the bullying or hazing in some cases (eg, subthreshold MDD may have been present at baseline; onset of a depressive disorder could have occurred during the interval between baseline and exposure to bullying or hazing during deployment). Thus, the association between bullying or hazing during deployment and MDD is likely attributable to diverse and potentially bidirectional mechanisms.

Bullying or hazing during deployment also exhibited a strong association with intermittent explosive disorder in the past 12 months, a condition characterized by aggressive outbursts. This finding is broadly consistent with cross-national epidemiologic data showing elevated rates of intermittent explosive disorder among individuals exposed to interpersonal violence.[29] As with MDD, various mechanisms could underlie the association between bullying or hazing and intermittent explosive disorder.[8,9] Perceived injustice is a key anger trigger; as such, it is plausible that the experience or subsequent recollection of bullying or hazing could lead to increased anger or lower the threshold for aggressive outbursts. Conversely, preexisting anger difficulties (which may not have been fully captured in our models) could contribute to aggressive exchanges with unit members, which in turn could affect the likelihood of being a target of bullying or hazing.

Exposure to bullying or hazing also explained unique variance in PTSD, suicidal ideation, and SUD. Of note, the survey did not ascertain whether PTSD symptoms were triggered by bullying or hazing. Indeed, many forms of bullying or hazing do not involve actual or threatened physical injury or sexual violence (ie, they would not meet criterion A for *DSM-5* diagnosis of PTSD). Nevertheless, contextual factors may exacerbate or mitigate impacts of traumatic events. Perceiving an atmosphere of threat within one's unit could increase a soldier's vulnerability to PTSD following other traumas, much like perceiving support from fellow unit members appears to protect against PTSD in combat-exposed soldiers.[14] The association of bullying or hazing with suicidal ideation likely relates to the elevated rate of MDD in exposed soldiers. Some evidence also suggests that perceptions of being a burden to other people may contribute to associations between bullying exposure and suicidality.[12] The observation of elevated risk of SUD among combat-deployed soldiers exposed to bullying or hazing converges with results showing greater alcohol misuse among South Korean military personnel exposed to hazing[9] and is consistent with evidence that substance use may be used as a way of coping with negative emotions that can result from workplace exposure to bullying or hazing.[30]

Approximately 1 in 8 soldiers (12.2%) reported that they had been bullied or hazed while deployed, suggesting the eradication of these behaviors could impact large numbers of service members during a critical time. Although investigations of unit-level influences on bullying or hazing are scarce, a study[31] of Norwegian naval personnel found that departments receiving higher scores

on a measure of fair leadership had lower proportions of personnel reporting that they had experienced bullying or witnessed a fellow unit member being bullied. Fair leadership included behaviors such as superiors treating members fairly and equally or distributing duties in a fair and equitable manner. It may be worthwhile to evaluate whether training focused on cultivating fair leadership practices affect incidence of bullying or hazing within military units.

Several sociodemographic and clinical correlates of bullying or hazing observed in this combat-deployed population have been reported in prior studies.[31-35] For example, civilian studies have found workplace bullying to be more commonly reported by women[32,33] and those with preexisting PTSD,[34] implying that these characteristics are associated with reports of being bullied across different occupational settings, not just in the context of military deployment. Another study[31] found that younger military personnel were more likely to have experienced or witnessed bullying in their unit, converging with our results indicating a higher rate of being bullied among younger soldiers. Finally, in this study, bullying or hazing was associated with more combat exposure, which may indicate that these behaviors are more common in units with more direct combat roles. A study[35] of female UK military veterans similarly found that military adversity, which included emotional bullying, was more frequently reported by women who had served in combat or combat support roles. To help target prevention efforts, future studies should evaluate whether bullying and hazing tend to cluster within military units and whether certain unit characteristics (eg, combat role, cohesion, and leadership) are associated with incidence of bullying or hazing.

Finally, soldiers who reported being bullied or hazed were also more likely to report physical and sexual assault (including during deployment). The survey did not clarify whether those traumas occurred separately or as part of the bullying or hazing.[36] The survey also did not assess other forms of military sexual trauma (eg, sexual harassment) that may co-occur or have unclear boundaries with bullying or hazing. Future studies should gather more detailed information to elucidate the unique vulnerabilities of individuals who experience distinct types of interpersonal trauma (eg, physical aggression or verbal abuse) or bullying or hazing that involves sexually assaultive or harassing behavior. The co-occurrence of bullying or hazing with combat exposure and noncombat trauma is consistent with evidence that stressors may cluster together and compound risk for some individuals.[37,38]

Limitations

This study has some limitations. First, causal inferences should not be made, because mental health conditions observed at follow-up could have predated the bullying or hazing exposure and unmeasured variables might have contributed to the observed associations between bullying or hazing exposure and the outcomes. We mitigated these issues by controlling for baseline characteristics (including lifetime history of mental health conditions) and other trauma exposure; however, these issues remain limitations of the study. Second, retrospective reports of life events and mental health symptoms may be affected by inaccurate recall, hesitancy to report stigmatized experiences, and reporting biases. Possible effects include underestimation of the prevalence of bullying or hazing or other abuse due to poor recall or underreporting of stigmatized experiences and potential inflation of associations between bullying or hazing and mental health problems due to mood-congruent reporting biases (eg, negative emotions could facilitate recall of adverse events, whereas positive emotions could foster minimization of bullying or hazing experiences). Third, the survey included only 1 item that assessed bullying or hazing exposure. Definitions of these exposures were not provided, and participants' self-reports were not validated through other modalities. Respondents may have reported events that would not meet accepted definitions of bullying or hazing or failed to report bullying or hazing because they were unsure if their experiences qualified as such. Fourth, the nature of bullying or hazing was not assessed (including whether it involved sexual assault or harassment), and its frequency was not considered because telephone participants were only administered a yes or no item about bullying or hazing. Therefore, we were unable to evaluate how the nature or frequency of the bullying or hazing affected risk of mental health

problems. Moreover, although bullying and hazing are similar phenomena, there may be differences in their psychological impact or in risk factors for being a target of bullying vs hazing. Then again, discriminating between bullying and hazing is often not possible because the intent of the malicious behavior and how the target interprets it may diverge (or be ambiguous).[11] Finally, some individuals may have experienced mental health problems related to bullying or hazing that were not captured in the STARRS-LS1 survey (eg, if the problems occurred during or shortly after deployment and resolved >1 year before the follow-up survey).

Conclusions

In this cohort study of combat-deployed US Army soldiers, reports of being bullied or hazed during deployment were associated with mental disorders and suicidal ideation at follow-up. These associations remained significant after adjusting for baseline characteristics and other potential traumas during the follow-up period. Unlike combat exposure, bullying or hazing is an avoidable event that appears to affect a substantial proportion of deployed soldiers (approximately 1 in 8 in this sample). Continued vigilance and implementation of prevention strategies[39] is warranted and may help reduce incidence of mental health problems among soldiers. Furthermore, fostering awareness and effective responses among unit leaders is important when bullying or hazing occurs, given evidence that support from leadership may buffer some effects of peer abuse.[40] Finally, more research is needed to replicate these findings and clarify how the nature, frequency, and timing of bullying or hazing relate to mental health risk.

ARTICLE INFORMATION

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Corresponding Author: Laura Campbell-Sills, PhD, Department of Psychiatry, University of California, San Diego, 9500 Gilman Dr, Mail Code 0855, La Jolla, CA 92093-0855 (l2campbellsills@health.ucsd.edu).

Author Affiliations: Department of Psychiatry, University of California, San Diego, La Jolla (Campbell-Sills, Stein); Herbert Wertheim School of Public Health and Human Longevity Science, University of California, San Diego, La Jolla (Sun, Jain, Stein); Department of Health Care Policy, Harvard Medical School, Boston, Massachusetts (Kessler); Center for the Study of Traumatic Stress, Department of Psychiatry, Uniformed Services University of the Health Sciences, Bethesda, Maryland (Ursano); Veterans Affairs San Diego Healthcare System, San Diego, California (Stein).

Author Contributions: Dr Jain and Ms Sun had full access to all of the data in the study and take responsibility for the integrity of the data and the accuracy of the data analysis.

Concept and design: Campbell-Sills, Stein.

Acquisition, analysis, or interpretation of data: All authors.

Drafting of the manuscript: Campbell-Sills, Jain, Stein.

Critical revision of the manuscript for important intellectual content: All authors.

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Therapeutics, Janssen, Jazz Pharmaceuticals, NeuroTrauma Sciences, PureTech Health, Sumitomo Pharma, and Roche/Genentech and stock options in Oxeia Biopharmaceuticals and EpiVario outside the submitted work. In the past 3 years, Dr Stein has been paid for his editorial work on *Depression and Anxiety* (editor in chief), *Biological Psychiatry* (deputy editor), and *UpToDate* (co–editor in chief for psychiatry). He is on the scientific advisory board for the Brain and Behavior Research Foundation and the Anxiety and Depression Association of America. No other disclosures were reported.

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Data Sharing Statement: See Supplement 2.

Additional Information: The Army STARRS team consists of the following: coprincipal investigators: Robert J. Ursano, MD (Uniformed Services University), and Murray B. Stein, MD, MPH (University of California, San Diego and Veterans Affairs San Diego Healthcare System); site principal investigators: James Wagner, PhD (University of Michigan), and Ronald C. Kessler, PhD (Harvard Medical School); US Army scientific consultant/liaison: Kenneth Cox, MD, MPH (Office of the Assistant Secretary of the Army [Manpower and Reserve Affairs]); and other team members: Pablo A. Aliaga, MA (Uniformed Services University), David M. Benedek, MD (Uniformed Services University), Laura Campbell-Sills, PhD (University of California, San Diego), Carol S. Fullerton, PhD (Uniformed Services University), Nancy Gebler, MA (University of Michigan), Meredith House, BA (University of Michigan), Paul E. Hurwitz, MPH (Uniformed Services University), Sonia Jain, PhD (University of California, San Diego), Tzu-Cheg Kao, PhD (Uniformed Services University); Lisa Lewandowski-Romps, PhD (University of Michigan), Alex Luedtke, PhD (University of Washington and Fred Hutchinson Cancer Research Center), Holly Herberman Mash, PhD (Uniformed Services University), James A. Naifeh, PhD (Uniformed Services University), Matthew K. Nock, PhD (Harvard University), Nur Hani Zainal, PhD (Harvard Medical School), Nancy A. Sampson, BA (Harvard Medical School), and Alan M. Zaslavsky, PhD (Harvard Medical School).

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SUPPLEMENT 1.

eMethods. Supplemental Methods
eTable 1. Results of the Fully Adjusted Model of Past-12-Month Major Depressive Disorder
eTable 2. Results of the Fully Adjusted Model of Past-12-Month Intermittent Explosive Disorder
eTable 3. Results of the Fully Adjusted Model of Past-12-Month Posttraumatic Stress Disorder
eTable 4. Results of the Fully Adjusted Model of Past-12-Month Suicidal Ideation
eTable 5. Results of the Fully Adjusted Model of Past-30-Day Substance Use Disorder
eReferences

SUPPLEMENT 2.

Data Sharing Statement