Supplementary Online Content

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eAppendix. Supplemental Methods

This supplementary material has been provided by the authors to give readers additional information about their work.

eTable 1. List and Brief Descriptions of Administrative Data Systems Included in the 2004-2009 Army STARRS Historical Administrative Data Study (HADS)

Database Acronym	Description
DCIPS	DEFENSE CASUALTY INFORMATION PROCESSING SYSTEM (DCIPS): Casualty data system for Army, Navy, Air Force, and Marines. It contains information on all casualties including deceased active duty members (and cause of death).
DMDC/CTS	DEFENSE MANPOWER DATA CENTER (DMDC) / CONTINGENCY TRACKING SYSTEM (CTS): Collection of activation, mobilization, and deployment data. Provides information to DoD decision makers and includes a CTS Deployment File used for tracking the location of deployed personnel.
DMDC/Master Personnel & DMDC/Transaction files	DEFENSE MANPOWER DATA CENTER (DMDC) / MASTER PERSONNEL & TRANSACTION FILES: The Active Duty Master File provides an inventory of all individuals on active duty (excluding reservists on active duty for training) at a point in time. It is a standardized and centralized database of present and past members of the active duty force. Personal data elements include social security number, education level, home of record, date of birth, marital status, number of dependents, race, ethnic group, and name. Military data elements include Service, pay grade, Armed Forces Qualification Test percentile (enlisted only), source of commission (officers only), military primary duty and secondary occupation, Unit Identification Code, months of service, duty location, Estimated Termination of Service date, basic active service date, date of current rank, pay entry base date, foreign language ability, and major command code.
DODSER	DEPARTMENT OF DEFENSE SUICIDE EVENT REPORT (DODSER): Provides risk and protective factor information for suicide events. This file contains non-fatal attempts, completed suicides, and suicide ideation cases.
MDR	MILITARY HEALTH SYSTEM DATA REPOSITORY (MDR): This database contains information about medical, dental, pharmaceutical, and ancillary claims data for both in network and purchased care as well as both inpatient and outpatient treatment. Data are collected on both Army personnel and their beneficiaries.
DMDC/DEERS	DEFENSE MANPOWER DATA CENTER (DMDC) / DEFENSE ENROLLMENT ELIGIBILITY REPORTING SYSTEM (DEERS): A DoD PDR containing personnel data and data related to DoD affiliation, benefits, employment, and pay.
TMDS	THEATER MEDICAL DATA STORE (TMDS): Used to track, analyze, view and manage Soldier medical treatment information recorded in the theater of operations. Features of TMDS: accessibility and visibility of service members' deployed medical records, outpatient and inpatient treatment records created in theater facilities, treatment records from other applications, reports on movement of patients, patient status and injury/illnesses.

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TRAC2ES	TRANSCOM REGULATING AND COMMAND AND CONTROL EVACUATION SYSTEM (TRAC2ES): A tracking system for all medical transfers across the world for all DOD services.

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eTable 2. List of Military Occupational Specialties Categorized as "Combat Arms" in the Current Study

Combat Arms		
	E11B	Infantryman
	E11C	Indirect Fire Infantryman
	E11Z	Infantry Senior Sergeant
	E13B	Cannon Crewmember
	E13E	Cannon Fire Direction Specialist
	E13F	Fire Support Specialist
	E13S	Field Artillery Surveyor
	E19D	Cavalry Scout
	E19K	M1 Armor Crewman
	E19Z	Armor Senior Sergeant

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eTable 3. *International Classification of Diseases, Ninth Revision–Clinical Modification* (*ICD-9-CM*) Codes Used to Identify Mental Disorders

Included Mental Health Diagnoses	ICD-9-CM Codes
Adjustment Disorder	309, .29, .3, .4, .82, .83, .89, .9
Dysthymic Disorder/ Neurasthenia/ Depression NOS	296.82, .90, .99 300.4, .5 309.0, .1 311, .0, .1 313.1
Major Depression	296.2, .20, .21, .22, .23, .24, .25, .26, .3, .30, .31, .32, .33, .34, .35, .36
Bipolar Disorder	296.00, .01, .02, .03, .04, .05, .06, .10, .11, .12, .13, .14, .15, .16, .40, .41, .42, .43, .44, .45, .46, .50, .51, .52, .53, .54, .55, .56, .60, .61, .62, .63, .64, .65, .66, .7, .80, .81, .89 301.13
Anxiety State/ Anxiety Disorder	300, .00, .01, .02, .09, .20, .21, .22, .23, .29, .3 309.21, .24, .28 313.0, .21, .22, .23
Post-Traumatic Stress Disorder	309.81
ADHD/ Learning Disorders	314.0, .00, .01, .1, .2, .8, .9 315.00, .01, .02, .09, .1, .2, .3, .31, .32, .34, .39, .4, .5, .8, .9
Conduct Disorder/ Oppositional Defiant Disorder	301.7 312.4, .8, .81, .82, .89, .9 313.81 V62.83
Eating Disorders	307.1, .50, .51, .59
Other Impulse Control Disorders	312.00, .01, .02, .03, .10, .11, .12, .13, .20, .21, .22, .23, .3, .30, .31, .32, .33, .34, .35, .39
Alcohol Induced Mental Disorders/ Alcohol Dependence/ Alcohol Abuse	291.0, .1, .2, .3, .4, .5, .8, .81, .82, .89, .9 303.00, .01, .02, .03, .9, .90, .91, .92, .93

	305, .0, .00, .01, .02, .03
Drug Induced Mental Disorders	292
Non-Dependent Drug Abuse	305.2, .20, .21, .22, .23, .3, .30, .31, .32, .33, .4, .40, .41, .42, .43, .5, .50, .51, .52, .53, .6, .60, .61, .62, .63, .7, .70, .71, .72, .73, .8, .80, .81, .82, .83, .9, .90, .91, .92, .93
Drug dependence	304
Personality Disorders	301.0, .1, .10, .11, .12, .20, .21, .22, .3, .4, .50, .51, .59, .6, .8, .80, .81, .82, .83, .84, .89, .9
Non-Affective Psychosis	295.00, .01, .02, .03, .04, .05, .10, .11, .12, .13, .14, .15, .20, .21, .22, .23, .24, .25, .30, .31, .32, .33, .34, .35, .40, .41, .42, .43, .44, .45, .50, .51, .52, .53, .54, .60, .61, .62, .63, .64, .65, .70, .71, .72, .73, .74, .75, .80, .81, .82, .83, .84, .85, .90, .91, .92, .93, .94, .95 297.0, .1, .2, .3, .8, .9 298.0, .1, .2, .3, .4, .8, .9, .90
Somatoform/ Dissociative Disorders	300.10, .11, .12, .13, .14, .15, .16, .19, .6, .7, .80, .81, .82, .89 306.0, .1, .2, .3, .4, .50, .51, .52, .53, .59, .6, .7, .8, .9 307.54, .80, .81, .89
Organic Mental Disorders	290.0, .10, .11, .12, .13, .20, .21, .3, .40, .41, .42, .43, .8, .9 293.0, .1, .81, .82, .83, .84, .89, .89, .9 294.0, .1, .10, .11, .8, .9 307.20, .21, .22, .23, .3 310.0, .8, .9 317 318.0, .1, 2 319
Sexual Disorders	302, .0, .1, .2, .3, .4, .50, .51, .52, .53, .6, .70, .71, .72, .73, .74, .75, .76, .79, .81, .82, .83, .84, .85, .89, .9
Sleep Disorders	307.4, .40, .41, .42, .43, .44, .45, .46, .47, .48, .49
Other Mental Disorders/ Mental Illness	292.85 299.00, .01, .10, .80, .81, .90, .91

	300.9
	307.0, .52, .53, .6, .7, .9
	309.22
	310.1
	313.3, .82, .89, .9
	316
Traumatic Stress	308, .0, .1, .2, .3, .4, .9
Excluded Mental Health Diagnoses	**ICD-9-CM Codes**
Postconcussion Syndrome	310.2
Tobacco Use Disorder	305.1, .10, .11, .12, .13
Symptoms, Signs, and Ill-Defined Conditions, Mental	797
	798, .0, .1, .2, .9
	799, .0, .01, .02, .1, .2, .21, .22, .23, .24, .25, .29, .3, .4, .8, .81, .82, .89, .9
Stressors/ Adversities	V40.0, .00, .1, .2, .20, .3, .30, .9, .90
	V61, .0, .01, .02, .03, .04, .05, .06, .07, .08, .09, .2, .20, .21, .22, .23, .24, .29, .3, .4, .41, .42, .49, .8, .9
	V62, .0, .1, .1 0, .2, .20, .21, .22, .29, .3, .4, .5, .8, 80, .81, .810, .811, .812, .82, .89, .9, .90
	V69.4, .5, .9
Marital Problems	V61.1, .10, .11, .12
Prior History of Mental Disorders	V11.0, .1, .2, .3, .8, .80, .9, .90
	V66.3
	V67.3
Indicator of Impulsivity and Risky Behavior	V69.2, .3
Self-Damaging Behavior	V69.8

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eTable 4. Sociodemographic and Service-Related Characteristics Among Regular Army
Enlisted Soldiers, 2004-2009[1]

	Weighted Proportion (%)	Unweighted Person-Months (N = 161,038)	Weighted Person-Months (N = 30,314,712)
Demographic Characteristics			
Gender			
Male	86.4	137,987	26,179,724
Female	13.6	23,051	4,134,988
Current Age			
< 21 years	15.0	26,023	4,555,860
21-24	30.2	49,172	9,146,457
25-29	23.2	36,932	7,042,130
30-34	13.8	21,551	4,185,626
35-39	10.8	16,683	3,277,895
40+	6.9	10,677	2,106,744
Race/Ethnicity			
White	59.8	97,316	18,127,711
Black	22.7	35,762	6,874,198
Hispanic	11.6	18,503	3,508,366
Asian	4.0	6,291	1,202,480
Other	2.0	3,166	601,957
Education			
< High school[2]	12.7	22,033	3,838,256
High school	76.6	122,302	23,210,083
Some college	5.5	8,546	1,671,987
College+	5.3	8,157	1,594,386
Marital Status			
Never married	41.0	67,409	12,416,951
Currently married	54.8	86,938	16,605,928
Previously married	4.3	6,691	1,291,833
Service-Related Characteristics			
Age at Army Entry			
< 21	62.2	100,580	18,846,778
21–24	24.5	39,272	7,434,908
≥ 25	13.3	21,186	4,033,026
Time in Service			
1-2 years	27.8	47,509	8,441,130
3-4 years	22.3	36,067	6,763,859
5-10 years	27.2	42,673	8,232,717
>10 years	22.7	34,789	6,877,006
Deployment Status			
Never deployed	40.3	66,820	12,212,586
Currently deployed	23.5	36,541	7,122,135
Previously deployed	36.2	57,677	10,979,991
Military Occupation			
Combat Arms	23.3	37,853	7,076,284

Other	76.7	123,185	23,238,428
Unit Size (Number of Soldiers)			
1–40	9.9	15,847	2,944,678
41–100	27.4	44,286	8,306,766
101–200	42.8	69,016	12,988,295
201–600	19.9	31,889	6,024,973
Unit Suicide Attempts in the Past Year			
0	74.5	118,473	22,592,538
1	13.6	22,218	4,109,081
2	5.9	9,894	1,799,501
3	2.7	4,572	817,089
4	1.4	2,347	412,088
5+	1.9	3,534	584,415
Suicide Attempt			
Yes	0.0	9,512	9,512
No	100.0	151,526	30,305,200

[1]The sample of enlisted soldiers (n=9,650 cases, 153,528 control person-months) is a subset of the total sample (n=193,617 person-months) from the Army STARRS Historical Administrative Data Study (HADS) that includes all Regular Army soldiers (i.e., excluding those in the U.S. Army National Guard and Army Reserve) with a suicide attempt in their administrative records during the years 2004-2009, plus a 1:200 stratified probability sample of all other active duty Regular Army person-months in the population exclusive of soldiers with a suicide attempt or other non-fatal suicidal event (e.g., suicidal ideation) and person-months associated with death (i.e., suicides, combat deaths, homicides, and deaths due to other injuries or illnesses). All records in the 1:200 sample were assigned a weight of 200 to adjust for the under-sampling of months not associated with suicide attempt.

eTable 5. Multivariate Associations of Unit Suicide Attempts, Other Unit Characteristics, and Service-Related Variables With Suicide Attempts Among Regular Army Enlisted Soldiers[1,2]

	OR	(95% CI)
Military Occupation		
Combat Arms	1.1*	(1.1–1.2)
Other	1.0	–
χ^2_1	24.3*	
Unit Size		
1–40	1.4*	(1.3–1.5)
41–100	1.3*	(1.2–1.3)
101–200	1.1*	(1.0–1.1)
201–600	1.0	–
χ^2_3	85.4*	
Mental Health Diagnosis History		
No	1.0	–
Yes	6.7*	(6.4–7.0)
χ^2_1	7,169.7*	
Unit Suicide Deaths in the Past Year		
0	1.0	–
1+	0.9	(0.8–1.0)
χ^2_1	3.7	
Unit Combat Deaths in the Past Year		
0	1.0	–
1	1.0	(0.9–1.1)
2	0.9	(0.7–1.2)
3	0.9	(0.6–1.3)
4	1.0	(0.7–1.6)
5	0.9	(0.5–1.7)
6+	0.8	(0.3–1.7)
χ^2_6	0.9	
Unit Accident Deaths in the Past Year		
0	1.0	–
1	0.9	(0.9–1.0)
2+	0.9	(0.7–1.3)
χ^2_2	1.3	
Unit Suicide Attempts in the Past Year		
0	1.0	–
1	1.3*	(1.3–1.4)
2	1.4*	(1.3–1.5)
3	1.5*	(1.3–1.6)
4	1.7*	(1.5–1.9)
5+	2.0*	(1.8–2.1)
χ^2_5	347.8*	

[1]The sample of enlisted soldiers (n=9,650 cases, 153,528 control person-months) is a subset of the total sample (n=193,617 person-months) from the Army STARRS Historical Administrative Data Study (HADS) that includes all Regular Army soldiers (i.e., excluding those in the U.S. Army National Guard and Army Reserve) with a suicide attempt in their administrative records during the years 2004-2009, plus a 1:200 stratified probability sample of all other active duty Regular Army person-months in the population exclusive of soldiers with a suicide attempt or other non-fatal suicidal event (e.g., suicidal ideation) and person-months associated with death (i.e., suicides, combat deaths, homicides, and deaths due to other injuries or illnesses). All records in the 1:200 sample were assigned a weight of 200 to adjust for the under-sampling of months not associated with suicide attempt.

[2]Logistic regression model included sociodemographics (gender, current age, race/ethnicity, education, marital status), service-related variables (age at entry into the Army, time in service, deployment status, military occupation, unit size, unit suicide attempts, unit suicide deaths, unit combat deaths, unit accident deaths), and history of mental health diagnosis. The models also included a dummy predictor variable for calendar month and year to control for secular trends.

eAppendix. Supplemental Methods

Identification of units for analysis

The Unit Identification Code (UIC) of each Soldier in a given month was used to group the person-month records in the study sample. The UICs for duty units were used in this analysis. The UIC is a 6-digit alpha-numeric code. Due to the sensitive nature of Army units, the UIC was encrypted to become a 10-digit alpha-numeric code. Missing UICs values were imputed by carrying available information forward or backward over a Soldier's career.