

Supplementary Table 1

Item-level coding for Deployment Stress Scale

Combat patrol/dangerous duty	<10 times =0 points; 10 or more times=1 point
Fired rounds at enemy/Took enemy fire	<10 times =0 points; 10 or more times=1 point
Wounded	0 times=0 points; 1 or more times=1 point
Had close call (e.g., equipment shot off)	0 or 1 time=0 points; 2 or more times=1 point
Unit member seriously wounded/killed	0=0 points; 1 to 4 times=1 point; 5 or more times=2 points
Responsible for enemy combatant death	0 times=0 points; 1 or more times=1 point
Responsible for non-combatant death	0 times=0 points; 1 or more times=1 point
Responsible for U.S. or ally death	0 times=0 points; 1 or more times=1 point
Witnessed homes/villages destroyed	0 times=0 points; 1 or more times=1 point
Directly exposed to death/violence	0 to 4 times=0; 5 or more times=1 point
Serious physical assault or fight ¹	0 times=0 points; 1 or more times=1 point
Sexual assault	0 times=0 points; 1 or more times=1 point
Bullied/hazed by unit members	0 times=0 points; 1 or more times=1 point
Any other highly stressful experience	0=0 points; 1 time=1 point; 2 or more times=2 points

Note. Coding schema was derived during preliminary analysis of data from a restricted sample of 1,145 respondents who completed the PPDS T0, T1, and T2 surveys. Scoring was informed by examination of the functional form of relationships of each rating to a clinically salient outcome (new-onset of PTSD or major depression at T2). The Deployment Stress Scale score was computed by summing points assigned for each item (theoretical range=0-16).

¹Separate items assessed physical assault and getting into a fight, but they were collapsed for scoring.

Supplementary Table 2

Latent structure of 7 survey items assessing stress in different life domains: 2-factor model

	Promax-rotated factor loadings	
	Civilian life stress	Army life stress
Financial situation	0.51	0.05
Love life	0.70	-0.02
Legal problems	0.36	0.05
Relationship with family	0.76	-0.03
Problems experienced by loved ones	0.75	-0.01
Problems with chain of command	-0.06	0.82
Problems with unit members	0.02	0.73

Note. Exploratory factor analysis was conducted with minimum residual estimation and promax rotation. A range of 1- to 3-factor solutions was attempted; however, an invalid solution was obtained when 3 factors were specified. The 1-factor model was rejected due to poor overall fit (RMR=.10; TLI=.68; RMSEA=.16). The overall fit of the 2-factor solution was good (RMR=.03; TLI=.95; RMSEA=.06); each item displayed a salient ($\geq .32$) loading on one of the two factors; cross-loadings were absent, and the two factors were readily interpretable.

Supplementary Table 3

Prevalence of past-month Heavy Drinking and Binge Drinking among U.S. Army soldiers pre- and post-deployment

	<i>n</i> ¹	Binge Drinking (5+ alcoholic drinks at least once)			Heavy Drinking (5+ alcoholic drinks at least weekly)		
		T0	T2	T3	T0	T2	T3
Overall	4645	52.5% (1.0%)	52.5% (1.0%)	41.3% (0.9%)	23.3% (0.7%)	26.1% (0.8%)	22.3% (0.7%)
Sex: Male	4358	53.8% (1.0%)	53.3% (1.0%)	42.6% (0.9%)	24.1% (0.7%)	26.6% (0.8%)	23.1% (0.7%)
Sex: Female	276	28.8% (3.1%)	36.7% (3.5%)	17.6% (3.4%)	8.3% (2.7%)	14.7% (2.3%)	6.9% (1.8%)
Race: White	3358	54.7% (1.1%)	56.0% (1.0%)	43.4% (0.9%)	24.2% (0.9%)	27.6% (1.0%)	22.8% (0.8%)
Race: Black	507	38.0% (2.9%)	34.5% (2.6%)	28.1% (2.3%)	18.5% (1.9%)	18.3% (1.9%)	18.8% (1.8%)
Race: Asian	195	43.9% (3.4%)	45.6% (3.0%)	38.1% (3.5%)	18.0% (2.5%)	17.3% (3.1%)	20.7% (3.3%)
Race: Other	569	55.5% (2.3%)	51.2% (2.2%)	43.3% (2.4%)	23.7% (1.9%)	27.1% (1.8%)	23.5% (1.4%)
Ethnicity: Non-Hispanic	3865	52.4% (1.0%)	53.1% (1.0%)	41.1% (0.9%)	23.4% (0.9%)	26.4% (1.0%)	22.2% (0.8%)
Ethnicity: Hispanic	762	52.7% (2.0%)	49.6% (2.0%)	42.7% (2.2%)	22.4% (1.7%)	24.2% (1.5%)	22.8% (1.6%)
Age: 18 to 20	731	36.4% (1.8%)	49.0% (2.1%)	48.2% (1.9%)	18.2% (1.7%)	30.7% (1.8%)	33.3% (1.9%)
Age: 21 to 25	1796	63.2% (1.4%)	61.1% (1.3%)	46.1% (1.2%)	30.0% (1.0%)	32.6% (1.3%)	24.1% (0.9%)
Age: 26 to 30	1114	56.0% (1.4%)	54.4% (1.5%)	39.8% (1.4%)	24.4% (1.2%)	23.9% (1.1%)	21.1% (1.3%)
Age: 31 and older	989	41.6% (1.6%)	39.6% (1.7%)	32.3% (1.4%)	14.9% (1.4%)	16.1% (1.2%)	14.9% (1.0%)

Note. Values are weighted prevalence (standard error). At all waves, prevalence of BD and HD differed significantly by sex [$\chi^2(1)= 21.98$ to 63.42 , all $ps<.001$] and age group [$\chi^2(3)=63.19$ to 193.46 , all $ps<.001$]. Prevalence of BD differed by race at all waves [$\chi^2(3)= 42.63$ to 88.40 , $ps<.001$], and prevalence of HD differed by race at T0 [$\chi^2(3)= 13.99$, $p=.003$] and T2 [$\chi^2(3)= 28.62$, $p<.001$]. No differences were observed based on ethnicity ($ps>.14$). ¹Some subgroup sample sizes total slightly <4645 due to rare cases of missing demographic data.

Supplementary Table 4

Prevalence of Alcohol or Substance Use Disorder (AUD/SUD) among soldiers pre- and post-deployment

	<i>n</i> ¹	Lifetime AUD/SUD at T0	Past-month AUD/SUD at T2	Past-month AUD/SUD at T3
Overall	4645	20.4% (0.7%)	6.8% (0.4%)	10.4% (0.5%)
Sex: Male	4358	20.7% (0.7%)	6.9% (0.4%)	10.6% (0.5%)
Sex: Female	276	13.2% (2.1%)	4.2% (1.8%)	5.7% (2.1%)
Race: White	3358	21.1% (0.8%)	6.8% (0.4%)	10.4% (0.6%)
Race: Black	507	16.5% (2.0%)	5.5% (0.9%)	7.1% (1.1%)
Race: Asian	195	14.3% (2.7%)	7.2% (1.8%)	13.2% (3.2%)
Race: Other	569	21.8% (1.5%)	7.9% (1.0%)	12.7% (1.3%)
Ethnicity: Non-Hispanic	3865	20.8% (0.8%)	6.8% (0.4%)	10.5% (0.6%)
Ethnicity: Hispanic	762	18.2% (1.6%)	7.2% (1.0%)	10.1% (1.2%)
Age: 18 to 20	731	9.5% (1.5%)	7.0% (1.0%)	10.7% (1.2%)
Age: 21 to 25	1796	21.8% (1.1%)	7.6% (0.6%)	11.7% (0.9%)
Age: 26 to 30	1114	24.1% (1.5%)	7.0% (0.8%)	10.0% (0.9%)
Age: 31 and older	989	20.2% (1.2%)	5.4% (0.8%)	9.0% (1.0%)

Note. Values are weighted prevalence (standard error). All estimates of AUD/SUD prevalence differed significantly by sex [$\chi^2(1)=4.25$ to 11.60 , $p<.05$]. Prevalence of lifetime AUD/SUD at T0 [$\chi^2(3)=13.75$, $p=0.003$] and of past-month AUD/SUD at T3 [$\chi^2(3)=11.94$, $p=0.008$] differed by race. Prevalence of lifetime AUD/SUD at T0 [$\chi^2(3)=60.88$, $p<0.001$] differed by age group. No differences were observed based on ethnicity ($p>.13$). ¹Some subgroup sample sizes total slightly <4645 due to rare cases of missing demographic data.