

## Supplementary Material

Supplementary Figure S1: Flow chart depicting selection of the three analytic samples

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Supplementary Table S2: Effects of combat exposure and vertical cohesion on post-deployment PTSD symptoms ( $N=6,684$  soldiers in  $k=89$  units)

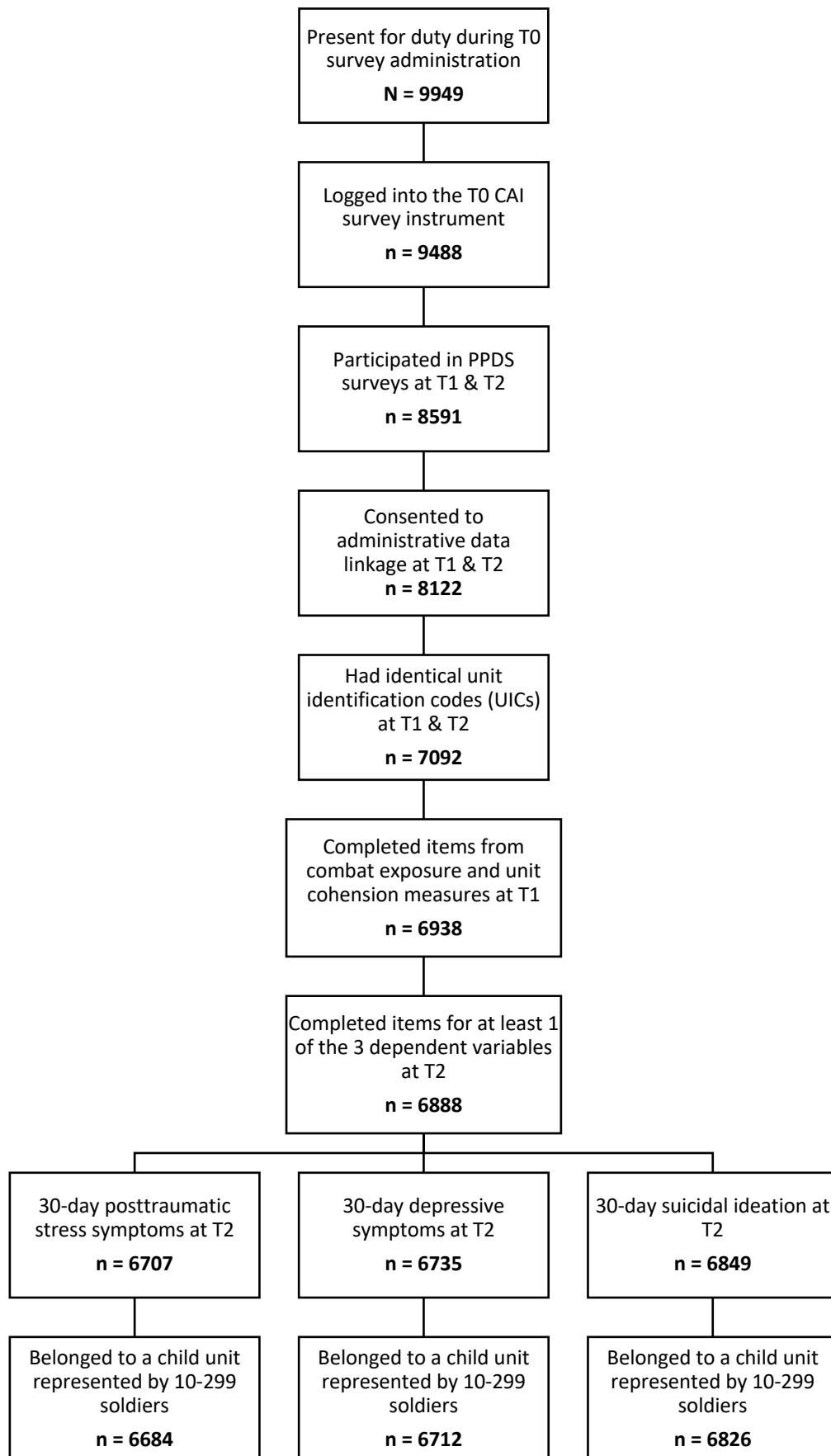
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Supplementary Table S1

Demographic and Army service characteristics of analytic samples from the Army STARRS Pre/Post Deployment Study (PPDS)

Demographic and Army Service Characteristics	<u>Analytic Samples</u>					
	30-day depression <i>N</i> =6712		30-day posttraumatic stress <i>N</i> =6684		30-day suicidal Ideation <i>N</i> =6826	
	No.	%	No.	%	No.	%
Gender						
Male	6,317	94.1	6,286	94.0	6,425	94.1
Female	395	5.9	398	6.0	401	5.9
Race/ethnicity						
White	4,548	67.8	4,531	67.8	4,618	67.7
Black	827	12.3	826	12.4	852	12.5
Hispanic	815	12.1	804	12.0	827	12.1
Asian	429	6.4	427	6.4	434	6.4
Other	93	1.4	96	1.4	95	1.4
Education						
Alternate H.S. education/GED	708	10.5	705	10.5	717	10.5

High School diploma	4,921	73.3	4,907	73.4	5,012	73.4
Some college	199	3.0	196	2.9	203	3.0
College	884	13.2	876	13.1	894	13.1
Marital Status						
Never Married	2,661	39.6	2,647	39.6	2,711	39.7
Currently Married	3,764	56.1	3,747	56.1	3,820	56.0
Previously Married	287	4.3	290	4.3	295	4.3
Age At Entry to Army Service						
17-20	3,885	57.9	3,860	57.7	3,947	57.8
21-24	1,943	28.9	1,935	28.9	1,973	28.9
25+	884	13.2	889	13.3	906	13.3
Current age						
<21	597	8.9	597	8.9	609	8.9
21-24	2,306	34.4	2,291	34.3	2,344	34.3
25-29	2,075	30.9	2,066	30.9	2,105	30.8
30-34	955	14.2	944	14.1	970	14.2
35-39	495	7.4	492	7.4	501	7.3

40+	284	4.2	294	4.4	297	4.4
<b>Rank</b>						
E1/E2	75	1.1	75	1.1	79	1.2
E3	852	12.7	841	12.6	870	12.7
E4	2,629	39.2	2,625	39.3	2,679	39.2
E5/E6	2,131	31.7	2,118	31.7	2,158	31.6
E7-E9	398	5.9	403	6.0	407	6.0
WO	60	0.9	58	0.9	60	0.9
CO	567	8.4	564	8.4	573	8.4
<b>Years of Active Service</b>						
1-2	1,179	17.6	1,166	17.4	1,203	17.6
3-4	2,269	33.8	2,268	33.9	2,303	33.7
5-10	2,277	33.9	2,266	33.9	2,317	33.9
>10	987	14.7	984	14.7	1,003	14.7

*Note.* Analytic samples were selected based on criteria outlined in the Method. The table shows characteristics of the soldiers who met all selection criteria and completed the specified outcome measure at 3 months post-deployment.

Supplementary Table S2

Effects of combat exposure and vertical cohesion on post-deployment PTSD symptoms ( $N=6,684$  soldiers in  $k=89$  units)

	Model 2.1S	Model 2.2S	Model 2.3S	Model 2.4S	Model 2.5s
Constant	24.67***(5.41)	24.80***(0.87)	27.45***(2.46)	24.82***(5.40)	24.67***(5.41)
Combat Exposure	1.65***(0.17)	1.62***(0.17)			1.65***(0.17)
Combat Exposure (group mean centered)			1.20*(0.77)		
Unit Average Combat Exposure	-0.01(1.77)			1.45(1.76)	-0.01(1.77)
Vertical Cohesion	-0.38***(0.06)	-0.38***(0.06)			-0.38***(0.06)
Unit Average Vertical Cohesion	0.08(0.52)		-0.30(0.23)	-0.35(0.52)	-0.01(1.77)
Combat Exposure X Vertical Cohesion		-0.03*(0.02)			-0.03†(0.02)
Combat Exposure (group mean centered) X Unit Average Vertical Cohesion			0.02(0.07)		
Unit Average Combat Exposure X Unit Average Vertical Cohesion				-0.04(0.17)	-0.02(0.17)

*Note.* Unstandardized regression coefficients reported (standard errors in parentheses). Models controlled for gender, age, race, education level, marital status, age of entry to the Army, and years of Army service. † $p<0.1$ , \* $p<0.05$ , \*\* $p<0.01$ , \*\*\* $p<0.001$ .

Supplementary Table S3

Effects of combat exposure and vertical cohesion on post-deployment depressive symptoms ( $N=6,712$  soldiers in  $k=89$  units)

	Model 3.1S	Model 3.2S	Model 3.3S	Model 3.4S	Model 3.5S
Constant	12.92***(1.24)	12.48***(0.54)	12.92***(1.31)	8.26**(3.20)	8.71**(3.21)
Combat Exposure	0.47***(0.05)	0.42***(0.11)			0.42***(0.11)
Combat Exposure (group mean centered)			0.94†(0.50)		
Unit Average Combat Exposure	-0.08(0.11)			1.88†(1.05)	1.47(1.06)
Vertical Cohesion	-0.48***(0.02)	-0.50***(0.03)			-0.50***(0.03)
Unit Average Vertical Cohesion	-0.04(0.11)		-0.44**(0.12)	-0.11(0.31)	0.38(0.31)
Combat Exposure X Vertical Cohesion		0.06(0.01)			0.01(0.01)
Combat Exposure (group mean centered) X Unit Average Vertical Cohesion			-0.04(0.05)		
Unit Average Combat Exposure X Unit Average Vertical Cohesion				-0.14(0.10)	-0.15(0.10)

*Note.* Unstandardized regression coefficients reported (standard errors in parentheses). Models controlled for gender, age, race, education level, marital status, age of entry to the Army, and years of Army service. † $p<0.1$ , \* $p<0.05$ , \*\* $p<0.01$ , \*\*\* $p<0.001$ .

Supplementary Table S4

Effects of combat exposure and vertical cohesion on post-deployment suicidal ideation ( $N=6,826$  soldiers in  $k=89$  units)

	Model 4.1S	Model 4.2S	Model 4.3S	Model 4.4S	Model 4.5S
Constant	-3.78***(0.90)	-1.68***(0.43)	-3.60***(0.88)	-5.57*(2.30)	-5.41*(2.34)
Combat Exposure	0.01(0.04)	0.06(0.07)			0.02(0.08)
Combat Exposure (group mean centered)			0.14(0.43)		
Unit Average Combat Exposure	0.12(0.08)			0.74(0.73)	0.69(0.75)
Vertical Cohesion	-0.13***(0.02)	-0.12***(0.03)			-0.13***(0.03)
Unit Average Vertical Cohesion	0.19*(0.08)		0.08(0.08)	0.22(0.22)	0.34(0.22)
Combat Exposure X Vertical Cohesion		0.00(0.01)			0.00(0.01)
Combat Exposure (group mean centered) X Unit Average Vertical Cohesion			-0.01(0.04)		
Unit Average Combat Exposure X Unit Average Vertical Cohesion				-0.06(0.07)	-0.05(0.07)

*Note.* Unstandardized regression coefficients reported (standard errors in parentheses). Models controlled for gender, age, race, education level, marital status, age of entry to the Army, and years of Army service. \* $p<0.05$ , \*\* $p<0.01$ , \*\*\* $p<0.001$ .



Table S5

Effects of combat exposure and horizontal cohesion on post-deployment PTSD symptoms, adjusting for pre-deployment level of PTSD symptoms ( $N=5,197$  soldiers in  $k=89$  units)

	Model 5.1S	Model 5.2S	Model 5.3S	Model 5.4S	Model 5.5S
Constant	20.85***(3.44)	17.81***(1.08)	15.533***(3.80)	9.27(8.44)	8.85(8.50)
T0 PTSD Symptoms	0.28***(0.01)	0.28***(0.01)	0.30***(0.01)	0.31***(0.01)	0.28***(0.01)
Combat Exposure	1.28***(0.08)	1.66***(0.24)			1.69***(0.25)
Combat Exposure (group mean centered)			-0.53(1.28)		
Unit Average Combat Exposure	-0.26(0.21)			5.75†(3.19)	4.29(3.23)
Horizontal Cohesion	-0.66***(0.08)	-0.47***(0.13)			-0.47***(0.13)
Unit Average Horizontal Cohesion	-0.22(0.59)		0.39(0.61)	0.89(1.38)	1.56(1.40)
Combat Exposure X Horizontal Cohesion <sup>a</sup>		-0.07*(0.04)			-0.07*(0.04)
Combat Exposure (group mean centered) X Unit Average Horizontal Cohesion			0.29(0.21)		
Unit Average Combat Exposure X Unit Average Horizontal Cohesion <sup>a</sup>				-0.76†(0.51)	-0.73†(0.52)

*Note.* Unstandardized regression coefficients reported (standard errors in parentheses). Models controlled for gender, age, race, education level, marital status, age of entry to the Army, and years of Army service. <sup>a</sup>Buffering effect significant in primary analysis; thus, a one-tailed test was conducted. † $p<0.1$ , \* $p<0.05$ , \*\* $p<0.01$ , \*\*\* $p<0.001$ .

Table S6

Effects of combat exposure and horizontal cohesion on post-deployment depressive symptoms, adjusting for pre-deployment level of depressive symptoms ( $N=5,216$  soldiers in  $k=89$  units)

	Model 6.1S	Model 6.2S	Model 6.3S	Model 6.4S	Model 6.5S
Constant	9.68***(1.87)	6.46***(0.64)	7.54***(1.91)	-0.69(4.30)	-0.63(4.28)
T0 depressive symptoms	0.52***(0.01)	0.52***(0.01)	0.56***(0.01)	0.56***(0.01)	0.52***(0.01)
Combat Exposure	0.47***(0.05)	0.76***(0.14)			0.77***(0.15)
Combat Exposure (group mean centered)			0.39(0.76)		
Unit Average Combat Exposure	-0.12(0.12)			4.41**(1.57)	3.72*(1.58)
Horizontal Cohesion	-0.53***(0.05)	-0.38***(0.08)			-0.39***(0.08)
Unit Average Horizontal Cohesion	-0.35(0.32)		-0.42(0.30)	0.75(0.70)	1.19†(0.70)
Combat Exposure X Horizontal Cohesion <sup>a</sup>		-0.05**(0.02)			-0.05*(0.02)
Combat Exposure (group mean centered) X Unit Average Horizontal Cohesion			0.01(0.12)		
Unit Average Combat Exposure X Unit Average Horizontal Cohesion <sup>a</sup>				-0.65**(0.25)	-0.62**(0.25)

*Note.* Unstandardized regression coefficients reported (standard errors in parentheses). Models controlled for gender, age, race, education level, marital status, age of entry to the Army, and years of Army service. <sup>a</sup>Buffering effect significant in primary analysis; thus, a one-tailed test was conducted. † $p<0.1$ , \* $p<0.05$ , \*\* $p<0.01$ , \*\*\* $p<0.001$ .

Table S7

Effects of combat exposure and horizontal cohesion on post-deployment suicidal ideation, adjusting for pre-deployment level of suicidal ideation ( $N=5,311$  soldiers in  $k=89$  units)

	Model 7.1S	Model 7.2S	Model 7.3S	Model 7.4S	Model 7.5S
Constant	-6.76***(1.66)	-2.86***(0.64)	-6.91***(1.62)	-11.79**(4.07)	-11.77**(4.08)
T0 Suicidal Ideation	2.93***(0.36)	3.00***(0.36)	3.05***(0.35)	3.05***(0.35)	3.00***(0.36)
Combat Exposure	0.07(0.05)	0.30*(0.13)			0.25†(0.13)
Combat Exposure (group mean centered)			-0.45(0.86)		
Unit Average Combat Exposure	0.00(0.10)			2.02(1.43)	1.75(1.44)
Horizontal Cohesion	-0.16**(0.05)	-0.01(0.09)			-0.05(0.09)
Unit Average Horizontal Cohesion	0.77**(0.28)		0.67**(0.25)	1.43*(0.66)	1.49*(0.66)
Combat Exposure X Horizontal Cohesion		-0.04†(0.02)			-0.03(0.02)
Combat Exposure (group mean centered) X Unit Average Horizontal Cohesion			0.08(0.55)		
Unit Average Combat Exposure X Unit Average Horizontal Cohesion <sup>a</sup>				-0.31† (0.17)	-0.28(0.23)

Note. Unstandardized regression coefficients reported (standard errors in parentheses). Models controlled for gender, age, race, education level, marital status, age of entry to the Army, and years of Army service. <sup>a</sup>Buffering effect significant in primary analysis; thus, a one-tailed test was conducted. † $p<0.1$ , \* $p<0.05$ , \*\* $p<0.01$ , \*\*\* $p<0.001$ .