

Supplemental Digital Content 1: Table. List of NSI-22 items in each subscale based on work by Meterko et al.

Vestibular	Somato-sensory	Cognitive	Affective	None (Orphan Items)
Feeling dizzy	Headaches	Poor concentration, can't pay attention, easily distracted	Fatigue, loss of energy, getting tired easily	Hearing difficulty
Loss of balance	Nausea			Loss of appetite or increased appetite
Poor coordination, clumsy	Vision problems, blurring, trouble seeing	Forgetfulness, can't remember things	Difficulty falling or staying asleep	
	Sensitivity to light		Feeling anxious or tense	
	Sensitivity to noise	Difficulty making decisions	Feeling depressed or sad	
	Numbness or tingling on parts of my body	Slowed thinking, difficulty getting organized, can't finish things	Irritability, easily annoyed	
	Change in taste and/or smell		Poor frustration tolerance, feeling easily overwhelmed by things	

Supplemental Digital Content 2. Table. Full logistic regression results estimating the association between Neurobehavioral Symptom Inventory (NSI) subscale scores and group membership (Table 3 of main paper).

Variable	Category	Severe or Very Severe Symptoms (Average Scaled NSI Score ≥ 3.0)				
		Vestibular	Somato-sensory	Cognitive	Affective	Interference
		OR (95%CI)	OR (95%CI)	OR (95%CI)	OR (95%CI)	OR (95%CI)
Latent Group	Moderately Healthy	1.0 (Ref)	1.0 (Ref)	1.0 (Ref)	1.0 (Ref)	1.0 (Ref)
	Moderately Healthy + Decline	2.1* (1.8-2.4)	2.0* (1.8-2.3)	2.0* (1.9-2.1)	2.2* (2.0-2.3)	1.9* (1.8-2.0)
	Polytrauma + Improvement	1.2 (1.0-1.4)	1.2 (1.1-1.4)	1.2* (1.2-1.3)	1.3* (1.2-1.4)	1.3* (1.3-1.4)
	Polytrauma Phenotype	2.9* (2.6-3.3)	2.9* (2.6-3.3)	3.0* (2.9-3.2)	3.6* (3.4-3.8)	2.8* (2.7-3.0)
	Mental Health	1.5* (1.3-1.7)	1.5* (1.4-1.8)	2.1* (2.0-2.3)	2.6* (2.5-2.8)	2.1* (2.0-2.2)
Age at CTBIE	19-29	1.0 (Ref)	1.0 (Ref)	1.0 (Ref)	1.0 (Ref)	1.0 (Ref)
	30-39	1.3* (1.2-1.5)	1.6* (1.4-1.7)	1.2* (1.2-1.3)	1.3* (1.3-1.4)	1.2* (1.2-1.2)
	40-49	1.6* (1.4-1.8)	1.9* (1.7-2.1)	1.2* (1.1-1.3)	1.2* (1.1-1.2)	1.0 (0.9-1.0)

	50-59	2.3* (1.9-2.8)	2.2* (1.8-2.7)	1.3* (1.2-1.5)	1.3* (1.2-1.5)	1.1 (1.0-1.2)
	60-69	2.4† (1.4-4.2)	2.3† (1.2-4.2)	1.2 (0.9-1.6)	1.4 (1.1-1.9)	0.9 (0.7-1.2)
Sex	Male	1.0 (Ref)	1.0 (Ref)	1.0 (Ref)	1.0 (Ref)	1.0 (Ref)
	Female	1.5* (1.3-1.8)	1.7* (1.5-2.0)	1.3* (1.2-1.4)	1.3* (1.2-1.4)	1.2* (1.2-1.3)
Educational attainment	Less than high school	1.3 (0.9-1.7)	1.2 (0.9-1.6)	1.2† (1.1-1.4)	1.1 (1.0-1.3)	1.1 (1.0-1.3)
	High school or equivalent	1.0 (Ref)	1.0 (Ref)	1.0 (Ref)	1.0 (Ref)	1.0 (Ref)
	Some college	1.1 (1.0-1.2)	1.0 (0.9-1.1)	1.0 (0.9-1.0)	1.0 (0.9-1.0)	1.0 (0.9-1.0)
	College graduate or higher	1.1 (0.9-1.3)	1.0 (0.8-1.2)	0.9 (0.8-1.0)	0.9† (0.8-0.9)	0.9 (0.8-1.0)
	Unknown	1.1 (0.6-2.1)	1.1 (0.6-2.0)	1.6† (1.2-2.1)	1.5 (1.1-1.9)	1.5† (1.2-2.0)
Marital status	Married	1.0 (Ref)	1.0 (Ref)	1.0 (Ref)	1.0 (Ref)	1.0 (Ref)
	Not married	1.1 (1.0-1.2)	1.1 (1.0-1.1)	1.1* (1.1-1.2)	1.1† (1.0-1.1)	1.1† (1.0-1.1)
Race/ ethnicity	White	1.0 (Ref)	1.0 (Ref)	1.0 (Ref)	1.0 (Ref)	1.0 (Ref)

	Black	1.8* (1.6-2.0)	2.1* (1.9-2.3)	1.2* (1.1-1.2)	1.5* (1.4-1.5)	1.3* (1.2-1.3)
	Asian	1.3 (1.0-1.7)	1.6† (1.2-2.1)	1.1 (1.0-1.3)	1.0 (0.9-1.2)	1.0 (0.9-1.1)
	Native American/ Pacific Islander	1.3 (0.9-1.7)	2.1* (1.6-2.6)	1.2 (1.0-1.3)	1.1 (1.0-1.3)	1.4* (1.2-1.6)
	Hispanic	1.4* (1.2-1.5)	1.6* (1.4-1.8)	1.1* (1.1-1.2)	1.2* (1.1-1.3)	1.1* (1.1-1.2)
	Unknown	1.0 (0.6-1.6)	0.6 (0.3-1.2)	0.9 (0.7-1.1)	1.0 (0.9-1.3)	1.0 (0.8-1.2)
Service branch	Air Force	1.2 (1.0-1.5)	1.0 (0.8-1.2)	0.9 (0.8-1.0)	1.0 (0.9-1.1)	1.0 (0.9-1.1)
	Army	1.0 (Ref)	1.0 (Ref)	1.0 (Ref)	1.0 (Ref)	1.0 (Ref)
	Coast Guard or Navy	0.9 (0.8-1.1)	0.9 (0.8-1.1)	0.9† (0.8-1.0)	0.9 (0.8-1.0)	1.0 (0.9-1.1)
	Marine Corps	1.0 (0.8-1.1)	0.9 (0.8-1.1)	0.9* (0.8-0.9)	0.9* (0.8-0.9)	0.9† (0.9-1.0)
Component	Active duty	1.0 (Ref)	1.0 (Ref)	1.0 (Ref)	1.0 (Ref)	1.0 (Ref)
	National Guard or Reserve	1.0 (0.9-1.1)	1.0 (0.9-1.1)	1.0 (1.0-1.1)	1.0 (0.9-1.0)	1.0 (1.0-1.1)
Rank	Enlisted	1.0 (Ref)	1.0 (Ref)	1.0 (Ref)	1.0 (Ref)	1.0 (Ref)

	Warrant or officer	0.8 (0.6-1.0)	0.6† (0.5-0.8)	0.8† (0.7-0.9)	0.8* (0.7-0.8)	0.8* (0.7-0.9)
Injury mechanism	Blast only	2.5† (1.3-4.7)	1.5 (0.9-2.5)	1.4† (1.1-1.7)	1.4† (1.1-1.7)	1.3† (1.1-1.6)
	Non-blast only	2.3† (1.2-4.4)	1.3 (0.8-2.2)	1.2 (1.0-1.5)	1.2 (1.0-1.5)	1.3† (1.1-1.5)
	Both blast and non-blast	2.9† (1.5-5.4)	2.0† (1.2-3.3)	1.6* (1.3-2.0)	1.7* (1.4-2.1)	1.7* (1.4-2.0)
	Neither	1.0 (Ref)	1.0 (Ref)	1.0 (Ref)	1.0 (Ref)	1.0 (Ref)
Other TBI experiences	TBI before deployment only	0.8* (0.7-0.9)	0.9 (0.8-1.0)	0.8* (0.8-0.9)	0.8* (0.8-0.9)	0.9* (0.9-0.9)
	TBI after deployment only	1.4* (1.2-1.7)	1.4* (1.2-1.6)	1.2* (1.1-1.3)	1.2* (1.1-1.3)	1.3* (1.2-1.4)
	TBI both before and after deployment	1.5* (1.3-1.9)	1.3† (1.1-1.6)	1.1 (1.0-1.2)	1.1† (1.0-1.3)	1.1 (1.0-1.1)
	No TBI history	1.0 (Ref)	1.0 (Ref)	1.0 (Ref)	1.0 (Ref)	1.0 (Ref)

†p<0.01

*p<0.0001

OR: odds ratio

CI: confidence interval

Ref: Reference group

TBI: Traumatic brain injury

CTBIE: Comprehensive Traumatic Brain Injury Evaluation; the examination conducted by the VA that includes the Neurobehavioral Symptom Inventory

Supplemental Digital Content 3: Table. Sensitivity analysis: Logistic regression results estimating the association between Neurobehavioral Symptom Inventory (NSI) subscale scores and group membership, among Veterans whose Validity-10 score was <22¹.

Comorbidity Phenotype	Severe or Very Severe Symptoms (Average Scaled NSI Score ≥3)				
	Vestibular	Somato-sensory	Cognitive	Affective	Interference
	OR (95%CI)	OR (95%CI)	OR (95%CI)	OR (95%CI)	OR (95%CI)
Moderately Healthy	1.0 (Ref)	1.0 (Ref)	1.0 (Ref)	1.0 (Ref)	1.0 (Ref)
Moderately Healthy + Decline	1.3 (0.9-1.8)	1.6 (1.0-2.5)	1.8* (1.7-1.9)	2.0* (1.9-2.2)	1.9* (1.8-2.0)
Polytrauma + Improvement	1.0 (0.7-1.4)	1.0 (0.6-1.8)	1.3* (1.2-1.3)	1.3* (1.2-1.4)	1.3* (1.3-1.4)
Polytrauma Phenotype	2.0* (1.4-2.8)	2.1* (1.2-3.5)	2.7* (2.5-2.9)	3.3* (3.1-3.5)	2.8* (2.7-3.0)
Mental Health	0.9 (0.7-1.4)	0.9 (0.5-1.6)	2.1* (2.0-2.3)	2.7* (2.6-2.9)	2.1* (2.0-2.2)

*p<0.0001

OR: odds ratio

CI: confidence interval

Ref: Reference group

All models are adjusted for: age group at the time of NSI (30-39, 40-49, 50-59, 60-69 years), race/ethnicity (white, non-Hispanic; black, non-Hispanic; Asian, non-Hispanic; Native American or Pacific Islander, non-Hispanic; Hispanic; unknown), sex (men, women), educational attainment (less than high school, high school or equivalent, some college, college graduate or graduate degree), marital status (married or not), service branch (Air Force, Army, Coast Guard or Navy, Marines), component (active duty, National Guard or Reserve), rank (enlisted, warrant or officer), injury mechanism (blast only, non-blast only, blast and non-blast), and other TBI history (no other TBI, other TBI pre-deployment, other TBI post-deployment, other TBI both pre- and post-deployment). Colors indicate magnitude of difference between Moderately Healthy Veterans and comparison group. Green represents similar (OR: 0.7-1.4), yellow indicates small differences (OR: 1.5-1.9), light red indicates moderate differences (OR: 2.0-2.4), and dark red indicates large differences (OR: 2.5 or higher).

¹ Validity-10 represents a subset of symptoms considered to be uncommon among respondents and high scores on these items may suggest symptom over-reporting. The