**Supplemental Material**

**Figure S1. Sample derivation**

Eligible for CSP#566 neurocognitive substudy

n = 397

Did not participate (n = 82):

* Full recruitment protocol not possible before study end (n = 36)
* Could not be reached (n = 33)
* Declined (n=13)

Participated in neuropsychological assessment

n = 315

Excluded from analyses (n = 43):

* Current TOMM score <38 (n = 5)
* Notably disengaged during study procedures (n = 2)
* No questionnaire data (n = 1)
* >180 days between phone interview and neuropsychological assessment (n = 1)
* Discordant TBI recollection (n = 34)

Analytic sample

n = 272

CSP#566=Department of Veterans Affairs Cooperative Studies Program #566. TOMM=Test of Memory Malingering.

|  |  |
| --- | --- |
| **Pre- to post-deployment assessment (n = 73 reporting TBI)** | **No. (%)** |
| Number of TBI events  |  |
|  1 | 46 (63.0) |
|  2 or more | 27 (37.0) |
| TBI classification, most serious event |  |
|  Mild | 65 (89.0) |
|  Greater than mild  | 8 (11.0) |
| Time, most recent event to post-deployment assessment |  |
|  <1 month | 0 (0) |
|  1 – 3 months | 1 (1.4) |
|  >3 months – 1 year | 58 (79.4) |
|  > 1 year | 14 (19.2) |
| **Post-deployment to long-term follow-up assessment (n = 60 reporting TBI)** | **No. (%)** |
| Number of TBI events |  |
|  1 | 34 (56.7) |
|  2 or more | 26 (43.3) |
| TBI classification, most serious event |  |
|  Mild | 50 (83.3) |
|  Greater than mild | 10 (16.7) |
| Time, most recent event to post-deployment assessment |  |
|  <1 month | 0 (0) |
|  1 – 3 months | 1 (1.7) |
|  >3 months – 1 year | 2 (3.3) |
|  > 1 year | 57 (95.0) |

**Table S1. Characteristics of TBI events reported during the study period**

TBI = traumatic brain injury.

**Table S2. Posttraumatic stress disorder symptom severity and neuropsychological performances across assessments (n = 272a)**

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
|  | **Pre-deployment, mean (*SD*)** | **Post-deployment, mean (*SD*)** | **Pre- to post-deployment, *p* value** | **Long-term follow-up, mean (*SD*)** | **Post-deployment to follow-up, *p* value** |
| PCL-C, summary score | 27.6 (10.6) | 30.5 (11.6) | 0.0001 | 34.5 (15.9) | <.0001 |
| Verbal Paired Associates (VPA) |  |  |  |  |  |
|  VPA I, trials 1-4, summary score | 18.6 (6.6) | 21.9 (6.9) | <.0001 | 23.8 (6.3) | <.0001 |
|  VPA II, summary score | 6.4 (2.0) | 6.8 (1.8) | 0.0005 | 7.1(1.6) | 0.0003 |
| Visual Reproductions (VR) |  |  |  |  |  |
|  VR immediate recall, summary score | 8.7 (2.0) | 8.8 (1.8) | .66 | 9.1 (1.8) | 0.008 |
|  VR delayed recall, summary score | 8.0 (2.1) | 8.2 (2.1) | .17 | 8.6 (2.2) | 0.005 |
| Simple Reaction Time, throughput score | 181.7 (27.0) | 185.0 (29.3) | .10 | 233.9 (36.2) | <.0001 |
| CPT, log-transformed omission errors | 0.2 (0.4) | 0.2 (0.5) | .85 | 0.2 (0.4) | .18 |

Data were compared across assessments with paired *t* tests. PCL-C=PTSD Checklist, civilian version. CPT=Continuous Performance Test.

aSample size varies slightly across variables as a function of missing data.

**Table S3. Comparison of analytic sample (n = 272) with eligible potential participants (n = 397) on sample characteristics at long-term follow-up**

|  |  |  |  |
| --- | --- | --- | --- |
| **Variable** | **Analytic Sample*****n* = 272** | **Eligible Participants*****n* = 397** | ***p*a** |
| Age, mean (*SD*), years | 35.3 (6.1) | 35.1 (6.0) | .62 |
| Sex, No. (%) |  |  | .75 |
|  Men | 256 (94.1%) | 376 (94.7%) |  |
|  Women | 16 (5.9%) | 21 (5.3%) |  |
| Race/ethnicity, No. (%) |  |  | .99 |
|  Caucasian | 191 (70.2%) | 279 (71.0%) |  |
|  African American | 34 (12.5%) | 46 (11.7%) |  |
|  Hispanic American | 32 (11.8%) | 47 (12.0%) |  |
|  Other | 15 (5.5%) | 21 (5.3%) |  |
|  Missing |  | 4 |  |
| Education, No. (%) |  |  | .92 |
|  High school or high school equivalence | 66 (21.5%) | 89 (22.6%) |  |
|  Part college | 181 (59.2%) | 229 (58.3%) |  |
|  College or greater | 59 (19.3%) | 75 (19.1%) |  |
|  Missing |  | 4 |  |
| Married, No. (%) | 181 (66.5%) | 264 (67.2%) | .87 |
|  Missing |  | 4 |  |
| Army service, mean (*SD*), years | 11.3 (5.6) | 11.1 (5.7) | .55 |
|  Missing |  | 4 |  |
| Duty status, No. (%) |  |  | .92 |
|  Regular active duty | 85 (31.2%) | 120 (30.5%) |  |
|  Reservist | 48 (17.7%) | 66 (16.8%) |  |
|  Military veterans | 139 (51.1%) | 207 (52.7%) |  |
|  Missing |  | 4 |  |
| Most recent rank (using pay grade), No. (%)  |  |  | .73 |
|  Junior enlisted (E1-E4) | 56 (20.6%) | 91 (23.2%) |  |
|  Non-commissioned officers (E5-E9) | 203 (74.6%) | 283 (72.0%) |  |
|  Officers (commissioned or warrant) | 13 (4.8%) | 19 (4.8%) |  |
|  Missing |  | 4 |  |
| Most recent military occupation type, No. (%) |  |  | .33 |
|  Combat arm | 113 (41.5%) | 182 (46.3%) |  |
|  Combat support | 39 (14.4%) | 49 (12.5%) |  |
|  Service support | 120 (44.1%) | 162 (41.2%) |  |
|  Missing |  | 4 |  |
| Cumulative OEF/OIF deployments, No. (%)  |  |  | .94 |
|  1 | 107 (39.3%) | 165 (41.6%) |  |
|  2 | 89 (32.7%) | 126 (31.7%) |  |
|  3 | 64 (23.5%) | 86 (21.7%) |  |
|  4 | 11 (4.1%) | 19 (4.8%) |  |
|  5 | 1 (0.4%) | 1 (0.2%) |  |
| PTSD casesb, No. (%) | 54 (19.9%) | 91 (23.2%) | .31 |
|  Missing |  | 4 |  |
| CES, mean (*SD*), summary score | 7.5 (10.3) | 7.7 (10.3) | .98 |
|  Missing | 3 | 6 |  |

OEF=Operation Enduring Freedom. OIF=Operation Iraqi Freedom. PTSD=posttraumatic stress disorder. CES=Combat Experiences Scale. aP-values correspond to the Wilcoxon rank-sum test, or the Chi-square test, as appropriate.bPTSD cases were derived from the PTSD Checklist, civilian version.