**Supplemental Table 1**. CHARTER scaled score correlations (*n* = 1191).

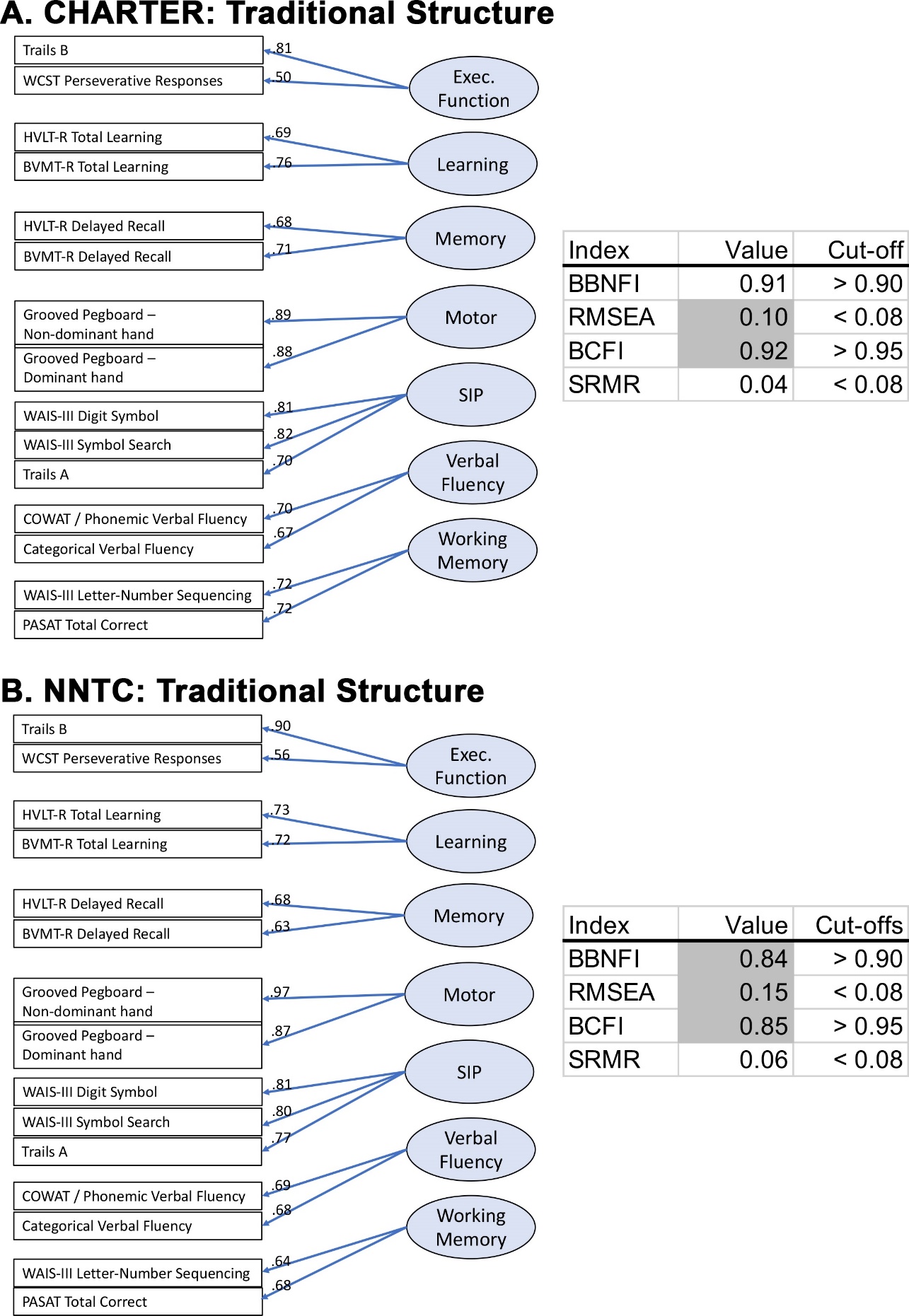
|  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
|  | | | | | | | | | | | |
|  | Trails B | WAIS-III DS | WAIS-III SS | Trails A | PASAT | WAIS-III LNS | HVLT-R Trials 1-3 | HVLT-R Delayed recall | BVMT-R Trials 1-3 | BVMT-R Delayed recall | GP  dominant |
| WAIS-III DS | 0.61 |  |  |  |  |  |  |  |  |  |  |
| WAIS-III SS | 0.61 | 0.70 |  |  |  |  |  |  |  |  |  |
| Trails A | 0.62 | 0.57 | 0.51 |  |  |  |  |  |  |  |  |
| PASAT | 0.58 | 0.51 | 0.55 | 0.42 |  |  |  |  |  |  |  |
| WAIS-III LNS | 0.55 | 0.50 | 0.54 | 0.42 | 0.52 |  |  |  |  |  |  |
| HVLT-R Trials 1-3 | 0.44 | 0.41 | 0.41 | 0.30 | 0.40 | 0.46 |  |  |  |  |  |
| HVLT-R Delayed recall | 0.41 | 0.38 | 0.38 | 0.28 | 0.38 | 0.41 | 0.80 |  |  |  |  |
| BVMT-R Trials 1-3 | 0.51 | 0.45 | 0.50 | 0.39 | 0.44 | 0.42 | 0.53 | 0.55 |  |  |  |
| BVMT-R Delayed recall | 0.46 | 0.40 | 0.45 | 0.35 | 0.38 | 0.38 | 0.47 | 0.49 | 0.83 |  |  |
| GP dominant | 0.43 | 0.53 | 0.50 | 0.46 | 0.36 | 0.30 | 0.28 | 0.28 | 0.40 | 0.36 |  |
| GP non-dominant | 0.45 | 0.50 | 0.47 | 0.47 | 0.37 | 0.30 | 0.31 | 0.31 | 0.42 | 0.38 | 0.78 |

**Note:** WAIS-III = Wechsler Adult Intelligence Scale-3rd ed.; WAIS-III DS = WAIS-III Digit Symbol; WAIS-III SS = WAIS-III Symbol Search; PASAT = Paced Auditory Serial Addition Task (first channel only); WAIS-III LNS = WAIS-III Letter-Number Sequencing; HVLT-R = Hopkins Verbal Learning Test-Revised; BVMT-R = Brief Visuospatial Memory Test-Revised; GP = Grooved Pegboard.

**Supplemental Table 2.** NNTC scaled score correlations (*n* = 615).

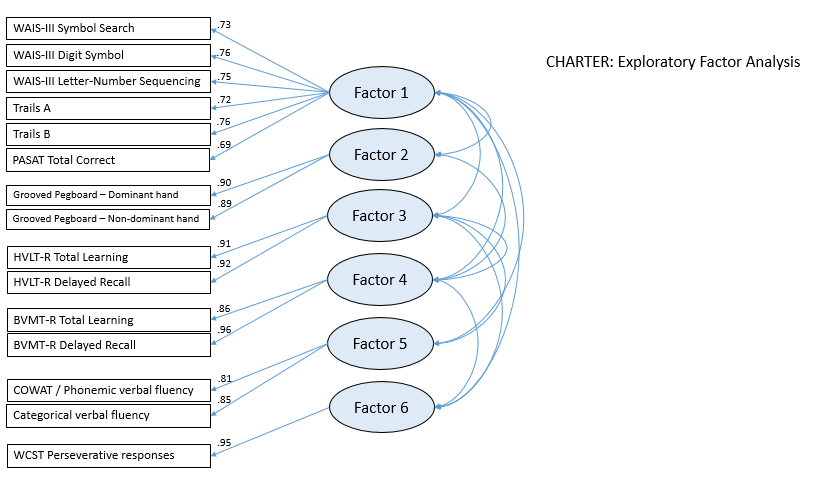
|  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
|  | | | | | | | | | | | |
|  | Trails B | WAIS-III DS | WAIS-III SS | Trails A | PASAT | WAIS-III LNS | HVLT-R Trials 1-3 | HVLT-R Delayed recall | BVMT-R Trials 1-3 | BVMT-R Delayed recall | GP dominant |
| WAIS-III DS | 0.57 |  |  |  |  |  |  |  |  |  |  |
| WAIS-III SS | 0.59 | 0.68 |  |  |  |  |  |  |  |  |  |
| Trails A | 0.65 | 0.57 | 0.54 |  |  |  |  |  |  |  |  |
| PASAT | 0.61 | 0.49 | 0.52 | 0.48 |  |  |  |  |  |  |  |
| WAIS-III LNS | 0.53 | 0.43 | 0.51 | 0.39 | 0.51 |  |  |  |  |  |  |
| HVLT-R Trials 1-3 | 0.39 | 0.40 | 0.38 | 0.35 | 0.40 | 0.36 |  |  |  |  |  |
| HVLT-R Delayed recall | 0.39 | 0.40 | 0.37 | 0.35 | 0.37 | 0.33 | 0.81 |  |  |  |  |
| BVMT-R Trials 1-3 | 0.43 | 0.41 | 0.40 | 0.38 | 0.38 | 0.36 | 0.45 | 0.47 |  |  |  |
| BVMT-R Delayed recall | 0.40 | 0.36 | 0.34 | 0.31 | 0.36 | 0.33 | 0.40 | 0.42 | 0.81 |  |  |
| GP dominant | 0.39 | 0.42 | 0.30 | 0.48 | 0.28 | 0.18 | 0.34 | 0.35 | 0.40 | 0.32 |  |
| GP non-dominant | 0.40 | 0.45 | 0.35 | 0.49 | 0.33 | 0.20 | 0.33 | 0.34 | 0.40 | 0.35 | 0.79 |

**Note:** WAIS-III = Wechsler Adult Intelligence Scale-3rd ed.; WAIS-III DS = WAIS-III Digit Symbol; WAIS-III SS = WAIS-III Symbol Search; PASAT = Paced Auditory Serial Addition Task (first channel only); WAIS-III LNS = WAIS-III Letter-Number Sequencing; HVLT-R = Hopkins Verbal Learning Test-Revised; BVMT-R = Brief Visuospatial Memory Test-Revised; GP = Grooved Pegboard.



**Supplemental Figure 1.** *Confirmatory factor analysis for CHARTER, with structure as reported in literature.* Standardized factor loadings are presented. As detailed in text, the overall model does not have satisfactory fit per multiple indices.

Abbreviations for neuropsychological tests above are: HVLT-R = Hopkins Verbal Learning Test-Revised, BVMT-R = Brief Visuospatial Memory Test-Revised, WCST = Wisconsin Card Sorting Test, WMS-III = Wechsler Memory Scale, Third edition, PASAT = Paced Auditory Serial Addition Test, COWAT = Controlled Oral Word Association Test, WAIS-III = Wechsler Adult Intelligence Scale – Third edition, Exec. Function = Executive Functioning, and SIP = Speed of Information Processing.



**Supplemental Figure 2.** *Exploratory factor analysis for CHARTER.* All loadings are standardized. Only standardized cross-loadings between latent factors ≥ .30 are depicted.

Abbreviations for neuropsychological tests above are: HVLT-R = Hopkins Verbal Learning Test-Revised, BVMT-R = Brief Visuospatial Memory Test-Revised, WCST = Wisconsin Card Sorting Test, WMS-III = Wechsler Memory Scale, Third edition, COWAT = Controlled Oral Word Association Test, PASAT = Paced Auditory Serial Addition Test, and WAIS-III = Wechsler Adult Intelligence Scale – Third edition.

**Supplemental** **Table 3**. Independent samples t-tests results in CHARTER by CEF T-score cut-off.

|  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
|  | CEF T-score < 41.7 (Impaired) | | |  | CEF T-score ≥ 41.7  (Normal) | | |  |  |
|  | *M* | *SD* | *n* |  | *M* | *SD* | *n* | *t* | *df* |
| Age | 47.3 | 8.45 | 243 |  | 42.0 | 8.47 | 979 | 8.69\* | 1,220\* |
| Years of education | 13.0 | 2.50 | 243 |  | 12.7 | 2.61 | 979 | 1.89 | 1,220 |
| WRAT-3 Reading T-score | 43.0 | 10.93 | 222 |  | 47.0 | 9.42 | 950 | -5.04⸸\* | 302⸸\* |
| BDI-II total score | 14.2 | 10.58 | 241 |  | 13.5 | 10.78 | 970 | .84 | 1,209 |
| Estimated duration (years) of HIV | 11.1 | 5.97 | 240 |  | 9.5 | 6.37 | 954 | 3.51\* | 1,192\* |
| Nadir CD4 (cells/μL; with square-root transformation) | 11.2 | 6.57 | 243 |  | 13.2 | 7.13 | 971 | -3.83\* | 1,212\* |
| Current CD4 (cells/μL; with square-root transformation) | 19.9 | 7.18 | 240 |  | 20.5 | 6.68 | 964 | -1.18 | 1,202 |
| Total blood count hemoglobin (g/dL) | 13.8 | 1.72 | 242 |  | 14.0 | 1.53 | 967 | -2.31⸸\* | 343⸸\* |

*M* = Mean, *SD* = standard deviation, *n* = sample size, *t* = t-test value, and *df* = degrees of freedom. ⸸ = Equal variances not assumed (Levene’s test for Equality of Variances, *p* < 0.05); \* = adjusted *p*-values <.05, per Benjamini-Hochberg correction.

**Supplemental Table 4.** Crosstabulation of Medical and Psychosocial Variables by CEF T-score cut-off in CHARTER.

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
|  | Cell counts by CEF T-score < 41.7 (Impaired) | Cell counts by CEF T-score ≥ 41.7 (Normal) | *χ2* | *df* |
| Sex |  |  |  |  |
| Male | 187 | 762 | .09 | 1 |
| Female | 56 | 217 |  |  |
|  |  |  |  |  |
| Race/ethnicity |  |  |  |  |
| Caucasian/White | 107 | 408 | 6.69 | 3 |
| African American/Black | 102 | 463 |  |  |
| Hispanic | 30 | 79 |  |  |
| Other | 4 | 29 |  |  |
|  |  |  |  |  |
| History of methamphetamine abuse/dependence present | 24 | 178 | 9.58\* | 1\* |
| History of methamphetamine abuse/dependence absent | 216 | 794 |  |  |
|  |  |  |  |  |
| History of cocaine abuse/dependence present | 74 | 423 | 12.80\* | 1\* |
| History of cocaine abuse/dependence absent | 166 | 549 |  |  |
|  |  |  |  |  |
| History of opiate abuse/dependence present | 33 | 157 | .42 | 1 |
| History of opiate abuse/dependence absent | 192 | 798 |  |  |
|  |  |  |  |  |
| History of alcohol abuse/dependence present | 117 | 538 | 3.38 | 1 |
| History of alcohol abuse/dependence absent | 123 | 434 |  |  |
|  |  |  |  |  |
| History of viral hepatitis present | 106 | 451 | .58 | 1 |
| History of viral hepatitis absent | 137 | 522 |  |  |
|  |  |  |  |  |
| History of hypertension present | 112 | 401 | 1.90 | 1 |
| History of hypertension absent | 131 | 572 |  |  |
|  |  |  |  |  |
| History of hyperlipidemia present | 94 | 268 | 11.87\* | 1\* |
| History of hyperlipidemia absent | 149 | 710 |  |  |
|  |  |  |  |  |
| History of diabetes present | 43 | 89 | 14.91\* | 1\* |
| History of diabetes absent | 200 | 889 |  |  |
|  |  |  |  |  |
| History of high cholesterol present | 62 | 180 | 5.82\* | 1\* |
| History of high cholesterol absent | 181 | 788 |  |  |
|  |  |  |  |  |
| History of seizure present | 26 | 98 | .10 | 1 |
| History of seizure absent | 217 | 879 |  |  |
|  |  |  |  |  |
| History of head injury present | 91 | 358 | .06 | 1 |
| History of head injury absent | 152 | 620 |  |  |

*χ2 = chi-square*value, *df* = degrees of freedom, \* = adjusted *p*-values <.05, per Benjamini-Hochberg correction.

**Supplemental** **Table 5.** Independent samples t-tests results in CHARTER by CEF DDS.

|  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
|  | CEF DDS >.5 (Impaired) | | |  | CEF DDS ≤ .5 (Normal) | | |  |  |
|  | *M* | *SD* | *n* |  | *M* | *SD* | *n* | *t* | *df* |
| Age | 46.6 | 8.89 | 274 |  | 42.0 | 8.39 | 948 | 7.90\* | 1,220\* |
| Years of education | 13.1 | 2.53 | 274 |  | 12.64 | 2.6 | 948 | 2.58\* | 1,220\* |
| WRAT-3 Reading T-score | 43.1 | 11.14 | 248 |  | 47.0 | 9.31 | 924 | -5.02⸸\* | 345⸸\* |
| BDI-II total score | 14.4 | 10.87 | 272 |  | 13.5 | 10.70 | 939 | 1.20 | 1,209 |
| Estimated duration (years) of HIV | 10.8 | 6.02 | 270 |  | 9.53 | 6.39 | 924 | 2.80\* | 1,192\* |
| Nadir CD4 (cells/μL; with square-root transformation) | 11.6 | 6.70 | 273 |  | 13.1 | 7.13 | 941 | -3.05\* | 1,212\* |
| Current CD4 (cells/μL; with square-root transformation) | 20.1 | 6.96 | 270 |  | 20.4 | 6.73 | 934 | -.66 | 1,202 |
| Total blood count hemoglobin (g/dL) | 13.8 | 1.64 | 273 |  | 14.0 | 1.55 | 936 | -2.01 | 1,207 |

*M* = Mean, *SD* = standard deviation, *n* = sample size, *t* = t-test value, and *df* = degrees of freedom.

⸸ = Equal variances not assumed (Levene’s test for Equality of Variances, \* = adjusted *p*-values <.05, per Benjamini-Hochberg correction.

**Supplemental Table 6.** Crosstabulation of Medical and Psychosocial Variables by CEF DDS in CHARTER.

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
|  | Cell counts by CEF DDS > .5 (Impaired) | Cell counts by CEF DDS ≤ .5 (Normal) | *χ2* | *df* |
| Sex |  |  |  |  |
| Male | 213 | 736 | .001 | 1 |
| Female | 61 | 212 |  |  |
|  |  |  |  |  |
| Race/ethnicity |  |  |  |  |
| Caucasian/White | 109 | 406 | 4.68 | 3 |
| African American/Black | 126 | 439 |  |  |
| Hispanic | 33 | 76 |  |  |
| Other | 6 | 27 |  |  |
|  |  |  |  |  |
| History of methamphetamine abuse/dependence present | 24 | 178 | 15.33\* | 1\* |
| History of methamphetamine abuse/dependence absent | 247 | 763 |  |  |
|  |  |  |  |  |
| History of cocaine abuse/dependence present | 80 | 417 | 19.04\* | 1\* |
| History of cocaine abuse/dependence absent | 191 | 524 |  |  |
|  |  |  |  |  |
| History of opiate abuse/dependence present | 36 | 154 | .78 | 1 |
| History of opiate abuse/dependence absent | 216 | 774 |  |  |
|  |  |  |  |  |
| History of alcohol abuse/dependence present | 127 | 528 | 7.24\* | 1\* |
| History of alcohol abuse/dependence absent | 144 | 413 |  |  |
|  |  |  |  |  |
| History of viral hepatitis present | 121 | 436 | .39 | 1 |
| History of viral hepatitis absent | 153 | 506 |  |  |
|  |  |  |  |  |
| History of hypertension present | 128 | 385 | 2.97 | 1 |
| History of hypertension absent | 146 | 557 |  |  |
|  |  |  |  |  |
| History of hyperlipidemia present | 103 | 259 | 10.69\* | 1\* |
| History of hyperlipidemia absent | 171 | 688 |  |  |
|  |  |  |  |  |
| History of diabetes present | 46 | 86 | 13.09\* | 1\* |
| History of diabetes absent | 228 | 861 |  |  |
|  |  |  |  |  |
| History of high cholesterol present | 69 | 173 | 5.99\* | 1\* |
| History of high cholesterol absent | 205 | 764 |  |  |
|  |  |  |  |  |
| History of seizure present | 27 | 97 | .04 | 1 |
| History of seizure absent | 247 | 849 |  |  |
|  |  |  |  |  |
| History of head injury present | 100 | 349 | .01 | 1 |
| History of head injury absent | 174 | 598 |  |  |

*χ2 = chi-square*value, *df* = degrees of freedom, \* = adjusted *p*-values <.05, per Benjamini-Hochberg correction.

**Supplemental Table 7.** Independent samples t-tests results in NNTC by CEF T-score cut-off.

|  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
|  | CEF T-score < 41.7 (Impaired) | | |  | CEF T-score ≥ 41.7 (Normal) | | |  |  |
|  | *M* | *SD* | *n* |  | *M* | *SD* | *n* | *t* | *df* |
| Age | 45.3 | 10.15 | 224 |  | 45.7 | 9.64 | 542 | -.58 | 764 |
| Years of education | 12.6 | 3.30 | 224 |  | 12.8 | 2.71 | 542 | -.72⸸ | 354⸸ |
| WRAT-3 Reading T-score | 48.5 | 10.55 | 15 |  | 51.7 | 7.90 | 34 | -1.18 | 47 |
| BDI-II total score | 14.3 | 11.20 | 62 |  | 11.1 | 9.60 | 180 | 2.19 | 240 |
| Estimated duration (years) of HIV | 21.9 | 8.26 | 205 |  | 22.4 | 7.91 | 516 | -.79 | 719 |
| Nadir CD4 (cells/μL; with square-root transformation) | 7.8 | 6.33 | 67 |  | 9.7 | 7.35 | 195 | -1.90 | 260 |
| Current CD4 (cells/μL; with square-root transformation) | 14.3 | 7.39 | 205 |  | 14.5 | 7.59 | 511 | -.27 | 714 |
| Total blood count hemoglobin (g/dL) | 13.5 | 1.88 | 206 |  | 13.4 | 1.86 | 499 | .59 | 703 |

*M* = Mean, *SD* = standard deviation, *n* = sample size, *t* = t-test value, and *df* = degrees of freedom. ⸸ = Equal variances not assumed (Levene’s test for Equality of Variances, *p* < 0.05); \* = adjusted *p*-values <.05, per Benjamini-Hochberg correction.

Please note that there were a high number of missing values for WRAT-3 Reading subtest T-score, BDI-II total score, and nadir CD4.

**Supplemental Table 8.** Crosstabulation of Medical and Psychosocial Variables and CEF T-score cut-off in NNTC.

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
|  | Cell counts by CEF T-score < 41.7 (Impaired) | Cell counts by CEF T-score ≥ 41.7 (Normal) | *χ2* | *df* |
| Sex |  |  |  |  |
| Male | 188 | 429 | 2.31 | 1 |
| Female | 36 | 113 |  |  |
|  |  |  |  |  |
| Race/ethnicity |  |  |  |  |
| Caucasian/White | 91 | 249 | 31.64\* | 3\* |
| African American/Black | 48 | 187 |  |  |
| Hispanic | 78 | 95 |  |  |
| Other | 7 | 11 |  |  |
|  |  |  |  |  |
| History of methamphetamine abuse/dependence present | 16 | 25 | 3.49 | 1 |
| History of methamphetamine abuse/dependence absent | 116 | 338 |  |  |
|  |  |  |  |  |
| History of cocaine abuse/dependence present | 17 | 66 | 1.87 | 1 |
| History of cocaine abuse/dependence absent | 114 | 297 |  |  |
|  |  |  |  |  |
| History of alcohol abuse/dependence present | 23 | 65 | .02 | 1 |
| History of alcohol abuse/dependence absent | 109 | 296 |  |  |
|  |  |  |  |  |
| History of viral hepatitis present | 52 | 117 | .20 | 1 |
| History of viral hepatitis absent | 96 | 237 |  |  |
|  |  |  |  |  |
| History of hypertension present | 34 | 86 | .14 | 1 |
| History of hypertension absent | 116 | 269 |  |  |
|  |  |  |  |  |
| History of hyperlipidemia present | 19 | 61 | 1.57 | 1 |
| History of hyperlipidemia absent | 130 | 293 |  |  |
|  |  |  |  |  |
| History of diabetes present | 20 | 43 | .19 | 1 |
| History of diabetes absent | 128 | 312 |  |  |

*χ2 = chi-square*value, *df* = degrees of freedom, \* = adjusted *p*-values <.05, per Benjamini-Hochberg correction. Results for opiate abuse/dependence are not displayed secondary to inadequate cell count for chi-square analysis.

**Supplemental Table 9.** Independent samples t-tests results in NNTC by CEF DDS.

|  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
|  | CEF DDS > .5 (Impaired) | | |  | CEF DDS ≤ .5 (Normal) | | |  |  |
|  | *M* | *SD* | *n* |  | *M* | *SD* | *n* | *t* | *df* |
| Age | 44.9 | 10.00 | 221 |  | 45.9 | 9.69 | 545 | -1.25 | 764 |
| Years of education | 12.7 | 3.17 | 221 |  | 12.7 | 2.77 | 545 | -.06⸸ | 363⸸ |
| WRAT-3 Reading T-score | 49.1 | 10.71 | 13 |  | 51.3 | 8.11 | 36 | -.77 | 47 |
| BDI-II total score | 15.0 | 11.36 | 60 |  | 10.9 | 9.48 | 182 | 2.54⸸ | 87.65⸸ |
| Estimated duration (years) of HIV | 22.1 | 8.35 | 203 |  | 22.36 | 7.88 | 518 | -.41 | 719 |
| Nadir CD4 (cells/μL; with square-root transformation) | 7.5 | 6.14 | 66 |  | 9.8 | 7.38 | 196 | -2.26 | 260 |
| Current CD4 (cells/μL; with square-root transformation) | 14.6 | 7.42 | 200 |  | 14.4 | 7.57 | 516 | .43 | 714 |
| Total blood count hemoglobin (g/dL) | 13.40 | 1.85 | 202 |  | 13.39 | 1.88 | 503 | .07 | 703 |

*M* = Mean, *SD* = standard deviation, *n* = sample size, *t* = t-test value, and *df* = degrees of freedom. ⸸ = Equal variances not assumed (Levene’s test for Equality of Variances, *p* < 0.05); \* = adjusted *p*-values <.05, per Benjamini-Hochberg correction.

Please note that there were a high number of missing values for WRAT-3 Reading subtest T-score, BDI-II total score, and nadir CD4.

**Supplemental Table 10.** Crosstabulation of Medical and Psychosocial Variables and CEF DDS in NNTC.

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
|  | Cell counts by CEF DDS > .5 (Impaired) | Cell counts by CEF DDS ≤ .5 (Normal) | *χ2* | *df* |
| Sex |  |  |  |  |
| Male | 181 | 436 | .36 | 1 |
| Female | 40 | 109 |  |  |
|  |  |  |  |  |
| Race/ethnicity |  |  |  |  |
| Caucasian/White | 95 | 245 | 30.49\* | 3\* |
| African American/Black | 44 | 191 |  |  |
| Hispanic | 75 | 98 |  |  |
| Other | 7 | 11 |  |  |
|  |  |  |  |  |
| History of methamphetamine abuse/dependence present | 17 | 24 | 4.39 | 1 |
| History of methamphetamine abuse/dependence absent | 119 | 335 |  |  |
|  |  |  |  |  |
| History of cocaine abuse/dependence present | 15 | 68 | 4.30 | 1 |
| History of cocaine abuse/dependence absent | 120 | 291 |  |  |
|  |  |  |  |  |
| History of alcohol abuse/dependence present | 21 | 67 | .74 | 1 |
| History of alcohol abuse/dependence absent | 115 | 290 |  |  |
|  |  |  |  |  |
| History of viral hepatitis present | 48 | 121 | .10 | 1 |
| History of viral hepatitis absent | 99 | 234 |  |  |
|  |  |  |  |  |
| History of hypertension present | 31 | 89 | 1.02 | 1 |
| History of hypertension absent | 118 | 267 |  |  |
|  |  |  |  |  |
| History of hyperlipidemia present | 16 | 64 | 4.07 | 1 |
| History of hyperlipidemia absent | 132 | 291 |  |  |
|  |  |  |  |  |
| History of diabetes present | 17 | 46 | .18 | 1 |
| History of diabetes absent | 130 | 310 |  |  |

*χ2 = chi-square*value, *df* = degrees of freedom, \* = adjusted *p*-values <.05, per Benjamini-Hochberg correction. Results for opiate abuse/dependence are not displayed secondary to inadequate cell count for chi-square analysis.