# Supplementary Tables

## Supplementary Table 1

|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
| **Memory Composite Score** | **Controls** | | **Patients** | | **Controls vs. Patients** | | |
| **Mean** | **SD** | **Mean** | **SD** | **Test** | **Statistic** | **p-corr** |
| Anterograde Retrieval (z) | 0.72 | 0.55 | -0.86 | 0.89 | Wt | 9.40 | < 0.0005 |
| Anterograde Retention (Visual Forgetting) (z) | 0.23 \* | 0.36 | -0.52 \* | 1.17 | U | 433.00 | 0.0005 |
| Remote Autobiographical (max = 18) | 15.93 \* | 2.63 | 9.77 | 4.82 | U | 130.00 | < 0.0005 |

## Supplementary Table 2

|  |  |  |
| --- | --- | --- |
| **Measure (z-res)** | **rho** | **p-corr** |
| **Inter-HPC rsFC** | **-0.578** | **0.0036** |
| R HPC volume (VBM) | -0.255 | > 0.9999 |
| L HPC volume (VBM) | -0.216 | > 0.9999 |
| R HPC volume (segmentation) | -0.202 | > 0.9999 |
| PrCu rsALFF | -0.120 | > 0.9999 |
| PCC rsALFF | 0.098 | > 0.9999 |
| L HPC volume (segmentation) | -0.089 | > 0.9999 |
| Medial thalamus (VBM) | -0.081 | > 0.9999 |
| R HPC - PCC rsFC | -0.082 | > 0.9999 |
| R thalamus volume (VBM) | -0.038 | > 0.9999 |
| R ERC volume (segmentation) | -0.013 | > 0.9999 |
| R HPC-MPFC rsFC | 0.009 | > 0.9999 |
| L thalamus volume (segmentation) | -0.003 | > 0.9999 |

## Supplementary Table 3

|  |  |  |  |
| --- | --- | --- | --- |
| **Composite Score (z)** | **Structural/Functional abnormalities (z-res)** | **r/rho** | **p-corr** |
| **Anterograde Retrieval (z)** | L HPC volume (segmentation) | 0.274 | > 0.999 |
| L HPC volume (VBM cluster) | 0.462 | 0.105 |
| L thalamus (segmentation) | 0.241 | > 0.999 |
| M thalamus volume (VBM cluster) | 0.361 | 0.598 |
| PCC rsALFF | 0.551 | 0.024 |
| PrCu rsALFF | 0.354 | 0.684 |
| R ERC volume (segmentation) | 0.271 | > 0.999 |
| R HPC - MPFC rsFC | 0.051 | > 0.999 |
| R HPC - PCC rsFC | 0.281 | > 0.999 |
| R HPC volume (segmentation) | 0.290 | > 0.999 |
| R HPC volume (VBM cluster) | 0.342 | 0.684 |
| R thalamus volume (VBM cluster) | 0.376 | 0.540 |
| R-L HPC rsFC | 0.389 | 0.546 |
| **Anterograde Retention (Visual Forgetting) (z)** | L HPC volume (segmentation) | 0.412 | 0.466 |
| L HPC volume (VBM cluster) | 0.401 | 0.532 |
| L thalamus volume (segmentation) | 0.288 | > 0.999 |
| M thalamus volume (VBM cluster) | 0.179 | > 0.999 |
| PCC rsALFF | 0.399 | 0.576 |
| PrCu rsALFF | 0.281 | > 0.999 |
| R ERC volume (segmentation) | 0.365 | 0.680 |
| R HPC - MPFC rsFC | 0.290 | > 0.999 |
| R HPC - PCC rsFC | 0.055 | > 0.999 |
| R HPC volume (segmentation) | 0.508 | 0.079 |
| R HPC volume (VBM cluster) | 0.556 | 0.024 |
| R thalamus volume (VBM cluster) | 0.338 | 0.850 |
| R-L HPC rsFC | 0.122 | > 0.999 |
| **Remote Autobiographical Memory (18)** | L HPC volume (segmentation) | 0.393 | 0.608 |
| L HPC volume (VBM cluster) | 0.467 | 0.272 |
| L thalamus volume (segmentation) | 0.558 | 0.041 |
| M thalamus volume (VBM cluster) | 0.463 | 0.297 |
| PCC rsALFF | 0.448 | 0.493 |
| PrCu rsALFF | 0.460 | 0.434 |
| R ERC volume (segmentation) | 0.025 | > 0.999 |
| R HPC - MPFC rsFC | 0.227 | > 0.999 |
| R HPC - PCC rsFC | 0.291 | > 0.999 |
| R HPC volume (segmentation) | 0.395 | 0.608 |
| R HPC volume (VBM cluster) | 0.413 | 0.546 |
| R thalamus volume (VBM cluster) | 0.463 | 0.297 |
| R-L HPC rsFC | 0.107 | > 0.999 |

## Supplementary Table 4

|  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| Structural/Functional  abnormalities (z-res) | Verbal Recognition (z) | | Visual Recognition (z) | | Verbal Recall (z) | | Visual Recall (z) | | Visual Forgetting (z) | | Remote Autobiographical (18) | |
| r | p-corr | r | p-corr | r | p-corr | Rho | p-corr | rho | p-corr | r | p-corr |
| PCC rsALFF | 0.368 | 0.308 | 0.543 | 0.014 | 0.582 | 0.004 | 0.445 | 0.104 | 0.399 | 0.216 | 0.448 | 0.136 |
| L HPC volume (VBM cluster) | 0.360 | 0.308 | 0.449 | 0.072 | 0.495 | 0.024 | 0.351 | 0.432 | 0.401 | 0.190 | 0.467 | 0.096 |
| R thalamus volume (VBM cluster) | 0.361 | 0.308 | 0.422 | 0.110 | 0.373 | 0.253 | 0.249 | > 0.999 | 0.338 | 0.350 | 0.463 | 0.099 |
| R-L HPC rsFC | 0.498 | 0.039 | 0.218 | > 0.999 | 0.332 | 0.352 | 0.313 | 0.781 | 0.122 | > 0.999 | 0.107 | > 0.999 |
| M thalamus volume (VBM cluster) | 0.397 | 0.180 | 0.326 | 0.416 | 0.356 | 0.290 | 0.223 | > 0.999 | 0.179 | 0.933 | 0.463 | 0.099 |
| PrCu rsALFF | 0.328 | 0.464 | 0.425 | 0.140 | 0.374 | 0.290 | 0.171 | > 0.999 | 0.281 | 0.594 | 0.460 | 0.126 |
| R HPC volume (VBM cluster) | 0.276 | 0.549 | 0.355 | 0.297 | 0.334 | 0.352 | 0.243 | > 0.999 | 0.556 | 0.008 | 0.413 | 0.147 |
| R HPC volume (segmentation) | 0.280 | 0.549 | 0.258 | 0.906 | 0.259 | 0.489 | 0.223 | > 0.999 | 0.508 | 0.026 | 0.395 | 0.166 |
| R ERC volume (segmentation) | 0.303 | 0.476 | 0.241 | 0.942 | 0.258 | 0.489 | 0.171 | > 0.999 | 0.365 | 0.272 | 0.025 | > 0.999 |
| L HPC volume (segmentation) | 0.281 | 0.549 | 0.166 | > 0.999 | 0.332 | 0.352 | 0.181 | > 0.999 | 0.412 | 0.171 | 0.393 | 0.166 |
| L thalamus (segmentation) | 0.238 | 0.549 | 0.194 | > 0.999 | 0.330 | 0.352 | 0.096 | > 0.999 | 0.288 | 0.594 | 0.558 | 0.015 |
| R HPC -PCC rsFC | 0.281 | 0.549 | 0.106 | > 0.999 | 0.269 | 0.489 | 0.274 | > 0.999 | 0.055 | > 0.999 | 0.291 | 0.528 |
| R HPC - MPFC rsFC | 0.118 | 0.549 | -0.118 | > 0.999 | 0.078 | 0.663 | 0.074 | > 0.999 | 0.290 | 0.594 | 0.227 | 0.738 |

## Supplementary Table 5

|  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| HPC portion volume (z-res) | Verbal Recognition (z) \* | | Visual Recognition (z) \* | | Verbal Recall (z) \*\* | | Visual Recall (z) \* | | Visual Forgetting (z) \*\*\* | | Remote Autobiographical (18) \*\*\*\* | |
| r | p-unc | r | p-unc | r | p-unc | rho | p-unc | Rho | p-unc | r | p-unc |
| R aHPC | 0.173 | 0.305 | 0.296 | 0.080 | 0.158 | 0.352 | 0.272 | 0.109 | 0.435 | 0.010 | 0.364 | 0.044 |
| L aHPC | 0.294 | 0.077 | 0.237 | 0.164 | 0.351 | 0.033 | 0.265 | 0.118 | 0.332 | 0.055 | 0.390 | 0.030 |
| R pHPC | 0.301 | 0.070 | 0.240 | 0.159 | 0.278 | 0.095 | 0.195 | 0.254 | 0.461 | 0.006 | 0.429 | 0.016 |
| L pHPC | 0.171 | 0.312 | 0.122 | 0.480 | 0.250 | 0.135 | 0.104 | 0.546 | 0.471 | 0.005 | 0.334 | 0.066 |

## Supplementary Table 6

|  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- |
| Structural / Functional abnormalities | ‘Impaired’ patients (z < 0.33) | | ‘Unimpaired’ patients (z = 0.33) | | t/Wt | p-corr | F | p-corr |
| Mean (z-res) | SD (z-res) | Mean (z-res) | SD (z-res) |
| R HPC volume (VBM) | -1.31 | 0.84 | -0.01 | 1.00 | -4.05 | 0.004 | 14.94 | 0.0075 |
| R HPC volume (segmentation) | -1.27 | 0.81 | -0.15 | 1.09 | -3.32 | 0.027 | 9.96 | 0.0480 |
| L HPC volume (VBM) | -1.01 | 1.16 | -0.07 | 1.07 | -2.43 | 0.190 | 4.20 | 0.3053 |
| L HPC volume (segmentation) | -1.15 | 0.96 | -0.17 | 1.16 | -2.63 | 0.143 | 5.60 | 0.2500 |
| R ERC volume (segmentation) | -0.79 | 0.91 | 0.07 | 1.06 | -2.48 | 0.190 | 4.45 | 0.3053 |
| R thalamus volume (VBM) | -0.96 | 1.04 | -0.19 | 0.81 | -2.43 | 0.190 | 5.34 | 0.2520 |
| M thalamus volume (VBM) | -0.76 | 0.74 | -0.38 | 0.90 | -1.33 | 0.645 | 1.38 | > 0.999 |
| L thalamus volume (segmentation) | -0.68 | 0.88 | -0.15 | 1.04 | -1.56 | 0.645 | 1.08 | > 0.999 |
| PCC rsALFF | -0.84 | 0.75 | -0.15 | 0.88 | -2.36 | 0.190 | 6.00 | 0.2319 |
| PrCu rsALFF | -0.83 | 0.75 | -0.21 | 0.89 | -2.10 | 0.270 | 5.36 | 0.2520 |
| R HPC – MPFC rsFC | -0.79 | 0.57 | -0.38 | 0.85 | -1.53 | 0.645 | 1.92 | 0.8871 |
| R HPC - PCC rsFC | -0.62 | 0.59 | -0.37 | 1.07 | -0.84 | 0.816 | < 0.005 | > 0.999 |
| R-L HPC rsFC | -0.58 | 0.92 | -0.38 | 1.17 | -0.51 | 0.816 | 0.19 | > 0.999 |

## Supplementary Table 7

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| **Memory Scores** | **Treated (n=31)** | | **Untreated (n=7)** | | **Treated vs Untreated** | |
| **Mean** | **SD** | **Mean** | **SD** | **t/Wt** | **p-corr** |
| Anterograde Retrieval (z) | -0.67 | 0.86 | -1.68 | 0.44 | 4.49 | 0.001 |
| Anterograde Retention (Forgetting) (z) | -0.42 | 1.11 | -1.13 | 1.43 | 1.29 | 0.416 |
| Remote Autobiographical Memory (max=18) | 10.19 | 4.74 | 7.60 | 5.13 | 1.11 | 0.416 |
| **Structural/Functional abnormalities (z-res)** | **Mean** | **SD** | **Mean** | **SD** | **t/Wt** | **p-corr** |
| R-L HPC rsFC | -0.43 | 1.02 | -0.69 | 1.20 | 0.50 | > 0.999 |
| PrCu rsALFF | -0.41 | 0.88 | -0.97 | 0.52 | 1.37 | > 0.999 |
| PCC resALFF | -0.38 | 0.88 | -0.86 | 0.53 | 1.16 | > 0.999 |
| R HPC - MPFC rsFC | -0.58 | 0.78 | -0.76 | 0.68 | 0.49 | > 0.999 |
| R HPC - PCC rsFC | -0.50 | 0.90 | -0.64 | 0.62 | 0.32 | > 0.999 |
| R ERC volume (segmentation) | -0.28 | 1.07 | -0.43 | 0.96 | 0.34 | > 0.999 |
| L HPC volume (VBM) | -0.42 | 1.14 | -1.34 | 1.31 | 1.89 | 0.832 |
| R Thalamus volume (VBM) | -0.55 | 1.01 | -0.57 | 1.09 | 0.05 | > 0.999 |
| R HPC volume (VBM) | -0.50 | 1.12 | -1.35 | 0.90 | 1.86 | 0.832 |
| M Thalamus volume (VBM) | -0.56 | 0.87 | -0.60 | 0.69 | 0.12 | > 0.999 |
| L Thalamus volume (segmentation) | -0.37 | 1.03 | -0.53 | 0.58 | 0.38 | > 0.999 |
| R HPC volume (segmentation) | -0.53 | 1.10 | -1.36 | 0.70 | 1.91 | 0.832 |
| L HPC volume (segmentation) | -0.47 | 1.16 | -1.26 | 0.90 | 1.69 | > 0.999 |

## Supplementary Table 8

|  |  |  |
| --- | --- | --- |
| **Structural/Functional Abnormalities (z-res)** | **r** | **p-corr** |
| PCC rsALFF | 0.538 | 0.028 |
| L HPC volume (VBM) | 0.427 | 0.204 |
| R thalamus volume (VBM) | 0.401 | 0.275 |
| R-L HPC rsFC | 0.390 | 0.330 |
| M thalamus volume (VBM) | 0.362 | 0.405 |
| R ERC volume (segmentation) | 0.292 | 0.888 |
| PrCu rsALFF | 0.274 | 0.888 |
| R HPC volume (VBM) | 0.258 | 0.888 |
| R HPC - PCC rsFC | 0.287 | 0.888 |
| L Thalamus volume (segmentation) | 0.217 | 0.964 |
| R HPC volume (segmentation) | 0.160 | > 0.999 |
| L HPC volume (segmentation) | 0.165 | > 0.999 |
| R HPC - MPFC rsFC | -0.007 | > 0.999 |

## Supplementary Table 9

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| **Group** | **Project** | **N** | **Structural MRI** | **Resting-state fMRI** | **Neuropsychological assessment** | **Comments** |
| Healthy  Controls | OPTIMA | 32 | ✔ | × | × | No rsfMRI or neuropsychological data\* available |
| MAP | 28 | ✔ | ✔ | ✔ | Full protocol |
| 1 | ✔ | × | ✔ | Full protocol – rsfMRI datasets discarded due to acquisition errors and/or movement |
| 4 | ✔ | ✔ | × | No neuropsychological assessment due to scheduling conflicts |
| 2 | ✔ | × | × | No neuropsychological assessment due to scheduling conflicts- rsfMRI datasets discarded due to acquisition errors and/or movement |
| 12 | × | × | ✔ | No structural / functional MRI due to scheduling conflicts |
| Patients | 35 | ✔ | ✔ | ✔ | Full protocol |
| 3 | ✔ | × | ✔ | Full protocol – rsfMRI datasets discarded due to acquisition errors and/or movement |