**Supplementary results**

**Supplementary Table 1.** Brain regions activated and de-activated for the controls and patients and group differences in the 2-back vs baseline contrast.

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| **Region** | ***x*** | ***y*** | ***z*** | ***Z*** | ***k*** | ***p*** |
| **Activation in controls** |  |  |  |  |  |  |
| Cerebellum | 28 | -64 | -28 | 12.60 | 98939 | <0.001 |
|  SMA | 0 | 16 | 46 | 12.60 |  |  |
|  Inferior parietal cortex | -38 | -46 | 42 | 12.50 |  |  |
|  Inferior frontal cortex | -46 | 6 | 28 | 12.30 |  |  |
| **De-activation in controls** |  |  |  |  |  |  |
| Medial prefrontal cortex | 2 | 48 | -10 | 11.7 | 45177 | <0.001 |
|  Precuneus | 4 | -52 | 24 | 10.6 |  |  |
|  PCC | -4 | -50 | 28 | 10.5 |  |  |
| Angular gyrus | -48 | -74 | 36 | 8.00 | 1726 | <0.001 |
| **Activation in patients** |  |  |  |  |  |  |
| SMA | 0 | 4 | 56 | 9.82 | 87712 | <0.001 |
|  Inferior parietal cortex | -44 | -42 | 40 | 9.65 |  |  |
|  Inferior occipital cortex | -44 | -78 | -12 | 9.31 |  |  |
| **De-activation in patients** |  |  |  |  |  |  |
| PCC/precuneus | 8 | -56 | 24 | 9.57 | 7743 | <0.001 |
|  Cuneus | -10 | -60 | 24 | 8.04 |  |  |
|  Fusiform gyrus | -28 | -38 | -16 | 4.24 |  |  |
| Medial prefrontal cortex | 0 | 58 | -8 | 4.62 | 1201 | 0.001 |
|  Superior frontal cortex | -16 | 58 | 18 | 3.03 |  |  |
| Angular gyrus | -48 | -74 | 34 | 5.92 | 1095 | 0.002 |
|  | 50 | -74 | 36 | 5.04 | 1000 | 0.004 |
| **Controls > Patients** |  |  |  |  |  |  |
| Cerebellum | 6 | -78 | -24 | 6.09 | 9663 | <0.001 |
|  | -30 | -62 | -30 | 5.99 |  |  |
| Middle frontal cortex | -38 | 64 | 18 | 5.46 | 8239 | <0.001 |
|  Basal ganglia/Thalamus | 20 | -2 | 14 | 4.94 |  |  |
|  Precentral gyrus | -42 | -2 | 46 | 4.66 |  |  |
| **Patients > Controls** |  |  |  |  |  |  |
| Medial prefrontal cortex | -4 | 44 | -14 | 7.94 | 25705 | <0.001 |
|  | 4 | 48 | -10 | 7.63 |  |  |
|  Temporal pole | 30 | 8 | -38 | 7.02 |  |  |
| Superior occipital cortex | 22 | -100 | 22 | 5.94 | 1319 | <0.001 |
| Postcentral gyrus | 26 | -32 | 60 | 4.55 | 902 | 0.007 |
| Postcentral gyrus | -28 | -30 | 64 | 1.69 | 745 | 0.021 |

SMA: supplementary motor area; PCC: posterior cingulate cortex; *k*: cluster size. Coordinates are in MNI space.