When looking into the verbal fluency test, we found that higher grey matter density in the left parietal lobe and posterior temporal lobe was associated with better performance. Lower grey matter density in the right visual cortex was associated with worse performance on the verbal fluency test. Better performance on the WLT, a task to test memory was associated with higher grey matter density in the left hippocampus. Better performance on the Stroop test, a reading colour naming interference task to test executive function was related to higher grey matter density in both hippocampi, and lower grey matter density in the left and right thalamus (Figure). Furthermore, we observed that higher grey matter density in the left insula was associated with worse performance on the LDST.

In conclusion, in this study we showed that the detection of more localised differences in brain structure provides relevant information in addition to aggregate measures. Subsequently, this study may provide insight into the pathways of cognitive decline.

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