nature human behaviour

SUPPLEMENTARY INFORMATION

https://doi.org/10.1038/s41562-017-0282-3

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Fluid intelligence is supported by the multiple-demand system not the language system

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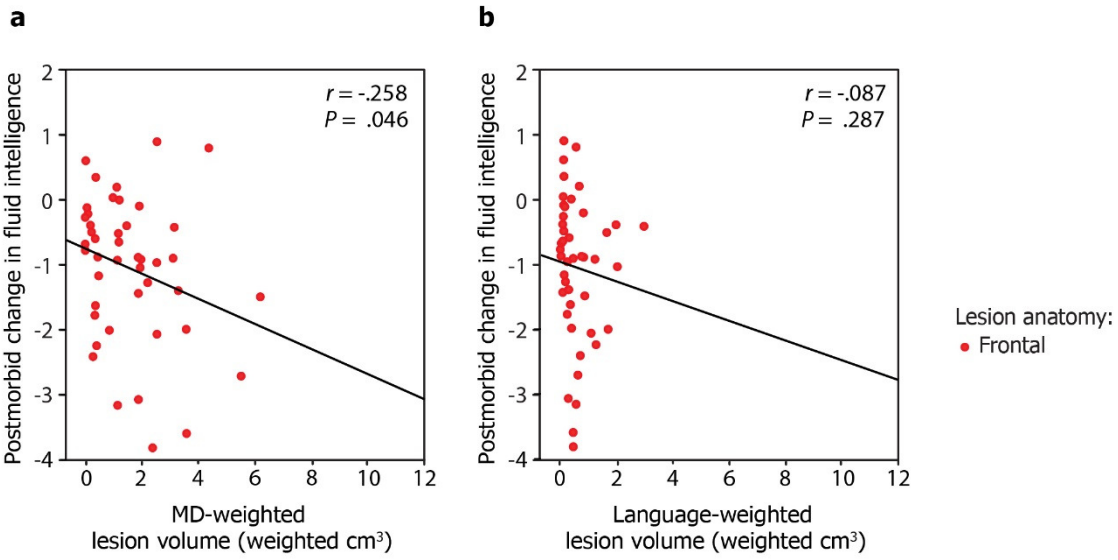
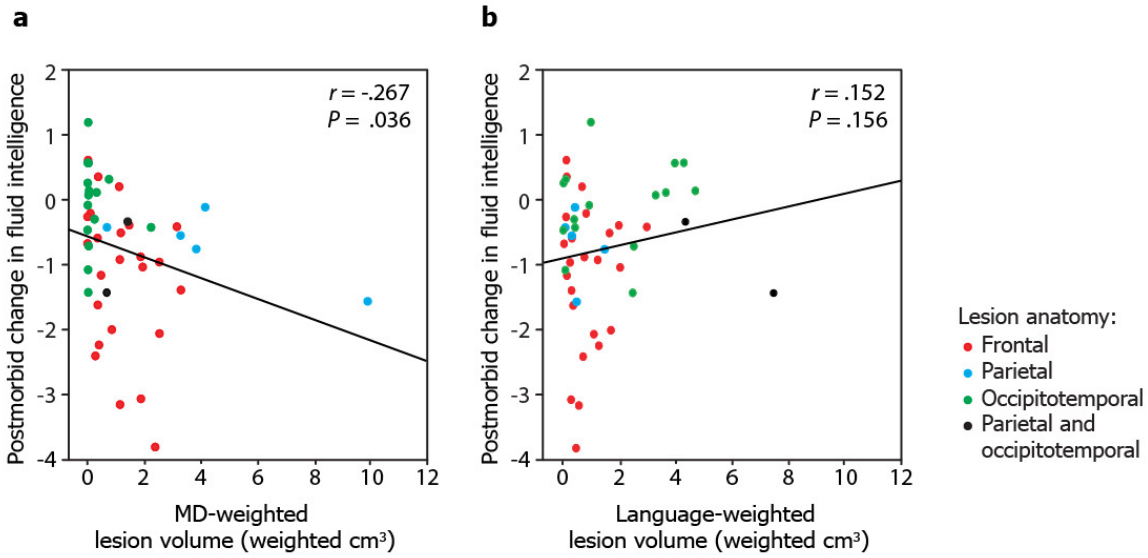


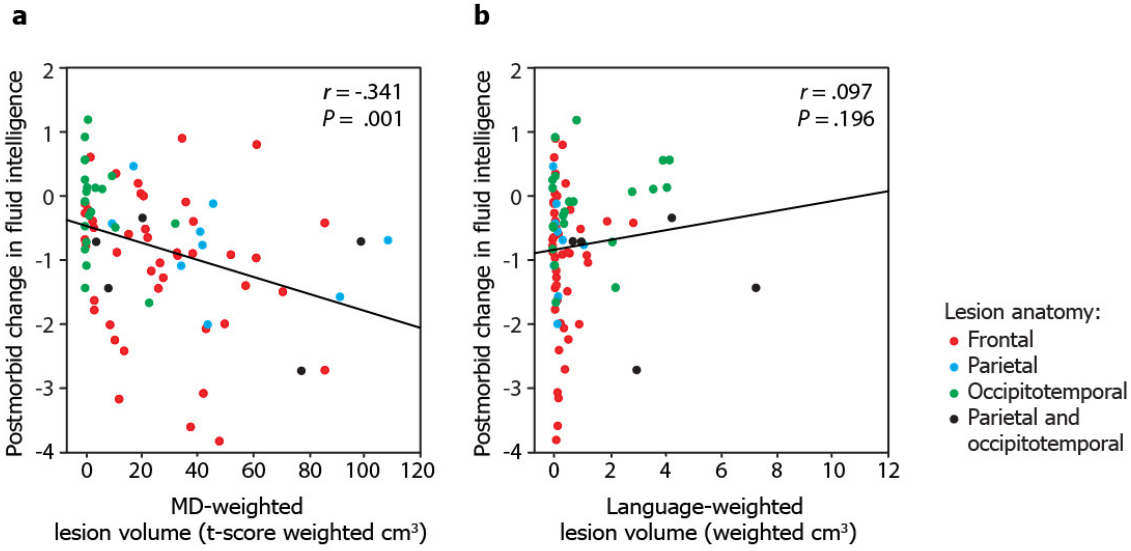
Supplementary Figure 1. Correlation of a) MD-weighted lesion volume, and b) language-weighted lesion volume with postmorbid change in fluid intelligence in patients with frontal lobe lesions

Data are repeated from Figure 1, for patients with lesions affecting the frontal lobe (N=44), with Pearson's correlation coefficient *r*, corresponding *P*, and fit lines for the frontal lobe group. For each patient, lesion volume was weighted for the extent of damage to the MD and language systems using probabilistic maps which indicate the likelihood that each voxel belongs to the MD and language systems in healthy participants. We estimated postmorbid change in fluid intelligence by comparing current function to estimated premorbid function (postmorbid minus premorbid: a negative score indicates a deficit). The main result obtained in the frontal lobe: the extent to which lesions affected the MD, but not language, system predicted fluid intelligence deficit.



Supplementary Figure 2. Correlation of a) MD-weighted lesion volume, and b) language-weighted lesion volume with postmorbid change in fluid intelligence in patients with lesions affecting the left hemisphere

Data are repeated from Figure 1, for patients with lesions affecting the left hemisphere lobe (N=46), with Pearson's correlation coefficient, *r*, corresponding *P*, and fit lines for this group of patients. For each patient, lesion volume was weighted for the extent of damage to the MD and language systems using probabilistic maps which indicate the likelihood that each voxel belongs to the MD and language systems in healthy participants. We estimated postmorbid change in fluid intelligence by comparing current function to estimated premorbid function (postmorbid minus premorbid: a negative score indicates a deficit). The main result obtained in the group of patients with lesions affecting the left hemisphere: the extent to which lesions affected the MD, but not language, system predicted fluid intelligence deficit.



Supplementary Figure 3. Correlation of a) MD-weighted lesion volume, and b) language-weighted lesion volume with postmorbid change in fluid intelligence using a second set of probabilistic weighting maps

For each patient (N=80), lesion volume was weighted for the extent of damage to the MD and language systems, using new probabilistic maps. For the MD system we weighted lesions using the *t*-score for the hard > easy contrast across the seven cognitively demanding tasks from [12]. For the language system we used a more restrictive probabilistic map which was the original language map (sentences > pseudowords) masked to exclude voxels that did not show activation in a contrast of reading sentences > passive viewing of fixation cross in at least 9 of the same 220 healthy participants. This removed default mode network activity from the language map. We estimated postmorbid change in fluid intelligence by comparing current function to estimated premorbid function (postmorbid minus premorbid: a negative score indicates a deficit). The result did not change: the extent to which lesions affected the MD, but not language, system predicted fluid intelligence deficit.