Appendix 1 to Via E, Zalesky A, Sánchez I, et al. Disruption of brain white matter microstructure in women with anorexia nervosa. *J Psychiatry Neurosci* 2014

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Structural analyses: voxel-based morphometry (VBM)

Methods

Acquisition
A 130-slice 3-dimensional SPGR sequence in the axial plane (repetition time 11.84 ms, echo time 4.2 ms, pulse angle 15°, field of view 30 cm, matrix 256 × 256 pixels, in-plane resolution 1.17 mm^2, and section thickness 1.2 mm, without gap) was acquired.

Preprocessing
Preprocessing of SPGR images was conducted on a Macintosh platform running MATLAB 7.8 (MathWorks) and SPM8 (Wellcome Department of Imaging Neuroscience)[1]. Images were realigned, segmented using the "new segment" algorithm in SPM8[2], normalized with DARTEL tools[3] and smoothed with an 8 mm full-width at half-maximum isotropic Gaussian kernel.

Analyses
Global grey matter and white matter volumes were obtained from segmented images in native space and used as covariates of no interest in the analyses. Global volumes were additionally compared between groups by means of independent samples *t* tests using SPSS (v. 20).

Whole-brain between-group differences in grey and white matter were explored at a corrected statistical threshold of $p_{FWE} < 0.05$. In addition, areas of differential fractional anisotropy or mean diffusivity were saved as masks and used in 2 separate region-of-interest (ROI) analyses to explore putative differences in volume in selected areas. In this case, we used small volume correction procedures and a statistical threshold of $p_{FWE} < 0.05$ corrected across the ROI.

Results

There were no differences in global grey and white matter volumes between controls and patients with anorexia nervosa (grey matter volume: mean 652.07 ± 43.93 in controls v mean 643.13 ± 48.73 in patients, $t_{36} = 0.59$, $p > 0.05$; white matter volume mean 474.19 ± 34.54 in controls v. mean 457.60 ± 35.22 in patients, $t_{36} = 1.47$, $p > 0.05$). Likewise, there were no regional between-group differences in grey or white matter volumes in either the whole brain or the ROI (superior longitudinal fasciculus and fornix) analyses.

References

1. Wellcome Trust Centre for Neuroimaging. *SPM software- Statistical Parametric Mapping*. Available: http://www.fil.ion.ucl.ac.uk/spm/software (accessed 2014 Jan. 30).
2. Ashburner J, Barnes G, Chen C, et al. (2011) New segment. In: SPM Manual. Functional Imaging Laboratory. Available from: http://www.fil.ion.ucl.ac.uk/spm/doc/manual.pdf (accessed 2014 Jan. 30).
3. Ashburner J. A fast diffeomorphic image registration algorithm. *Neuroimage* 2007;38:95-113.

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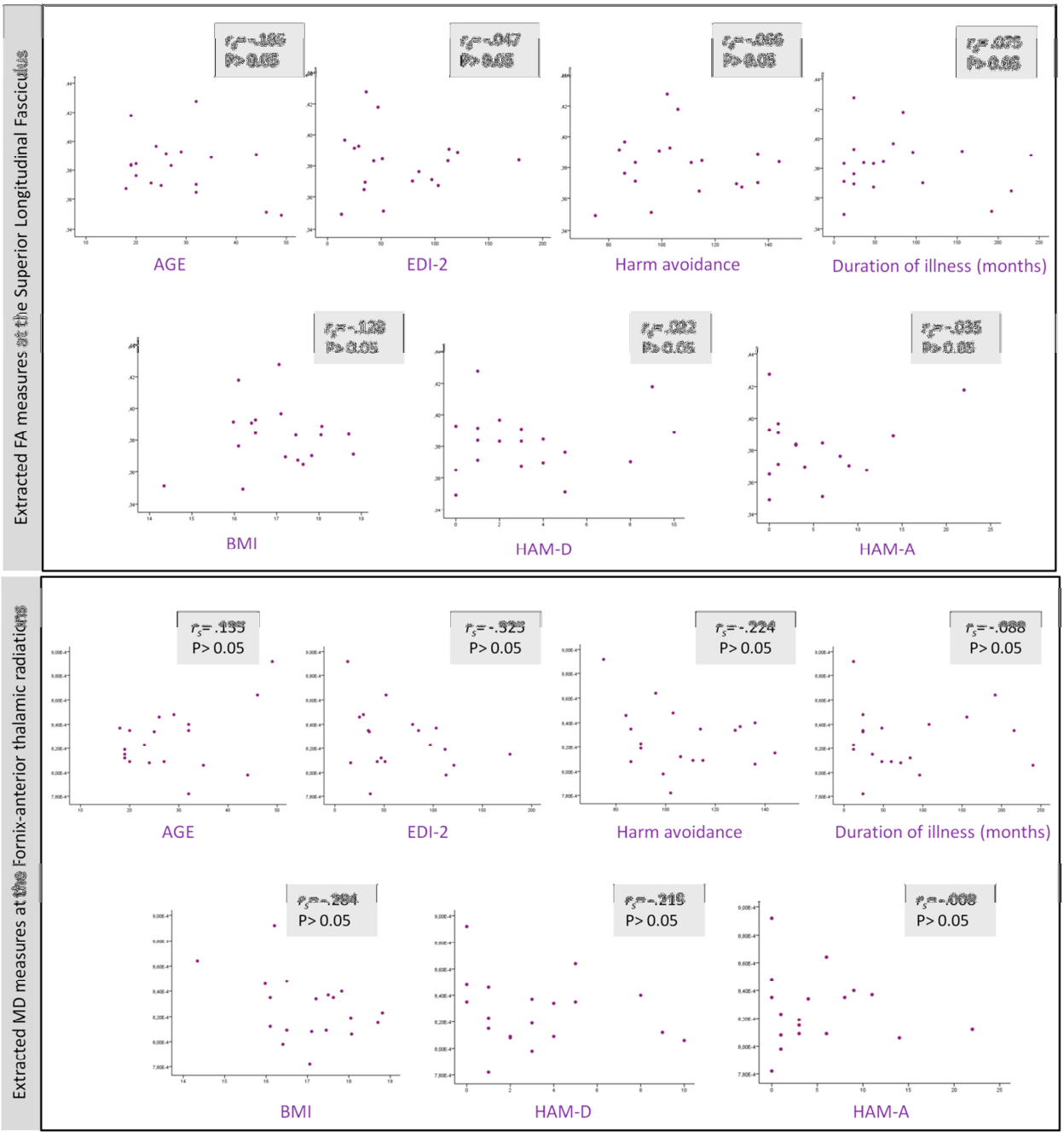

Fig. S1: Scatter plots representing the associations between diffusivity measures (fractional anisotropy [FA] at the superior longitudinal fasciculus and mean diffusivity [MD] at the fornix) and demographical/clinical variables. Light grey boxes show the statistical results of each correlation (Spearman correlation coefficients and *p* values). BMI = body mass index; EDI-2 = Eating Disorders Inventory-2; HAM-A = Hamilton Rating Scale for Anxiety; HAM-D = Hamilton Rating Scale for Depression.