years) community-dwelling individuals with no neurological disorders or clinically significant brain abnormalities. Voxelwise statistical analysis of grey/white matter volumes were done in SPM8 (p=0.001, uncorrected). Age was controlled for.

In men, being a carrier of the Met allele for both BDNF (BDNF*Met+) and COMT (COMT*Met+) was associated with larger regional grey matter volumes (L Superior Frontal Gyrus) but not with regional white matter volumes. Conversely, in women being a Met allele carrier for both genes was associated with smaller regional grey matter volumes in the L Middle Frontal Gyrus and L Middle Temporal Gyrus as well as with smaller regional white matter volumes in the RSub-lobar Extra-nuclear area.

This study provides evidence of a sexually dimorphic and interactive effect of the main BDNF and COMT polymorphism suggesting a positive association in men and a negative association in women particularly with frontal lobe structures which are also implicated in brain ageing and AD.

A24 - COMT and BDNF gene interactions predict brain structure in ageing

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The brain-derived neurotrophic factor (BDNF) Val66Met polymorphism and catechol-o-methyl-transferase (COMT) Val158Met polymorphism individually have been linked to cerebral structure, function and cognition, with some studies reporting gender differences. While the BDNF-Val66Met polymorphism is implicated in brain structures and cognitive function in areas consistent with the neural circuitry vulnerable in Alzheimer’s disease (AD), the COMT-Val158Met polymorphism, despite its association with cognitive function, in itself does not seem to be. In addition, combined effects of the BDNF-Val66Met and COMT-Val158Met on cerebral structure remain unclear.

Using the PATHThrough Life Project, this study investigates interactions between the main BDNF and COMT polymorphisms and regional grey/white matter volumes in men and women. Genotyping for the polymorphism was conducted in 259 cognitively healthy older (age range 68-73