RESEARCH ARTICLE

Figures and figure supplements

Longitudinal stability of medial temporal lobe connectivity is associated with tau-related memory decline

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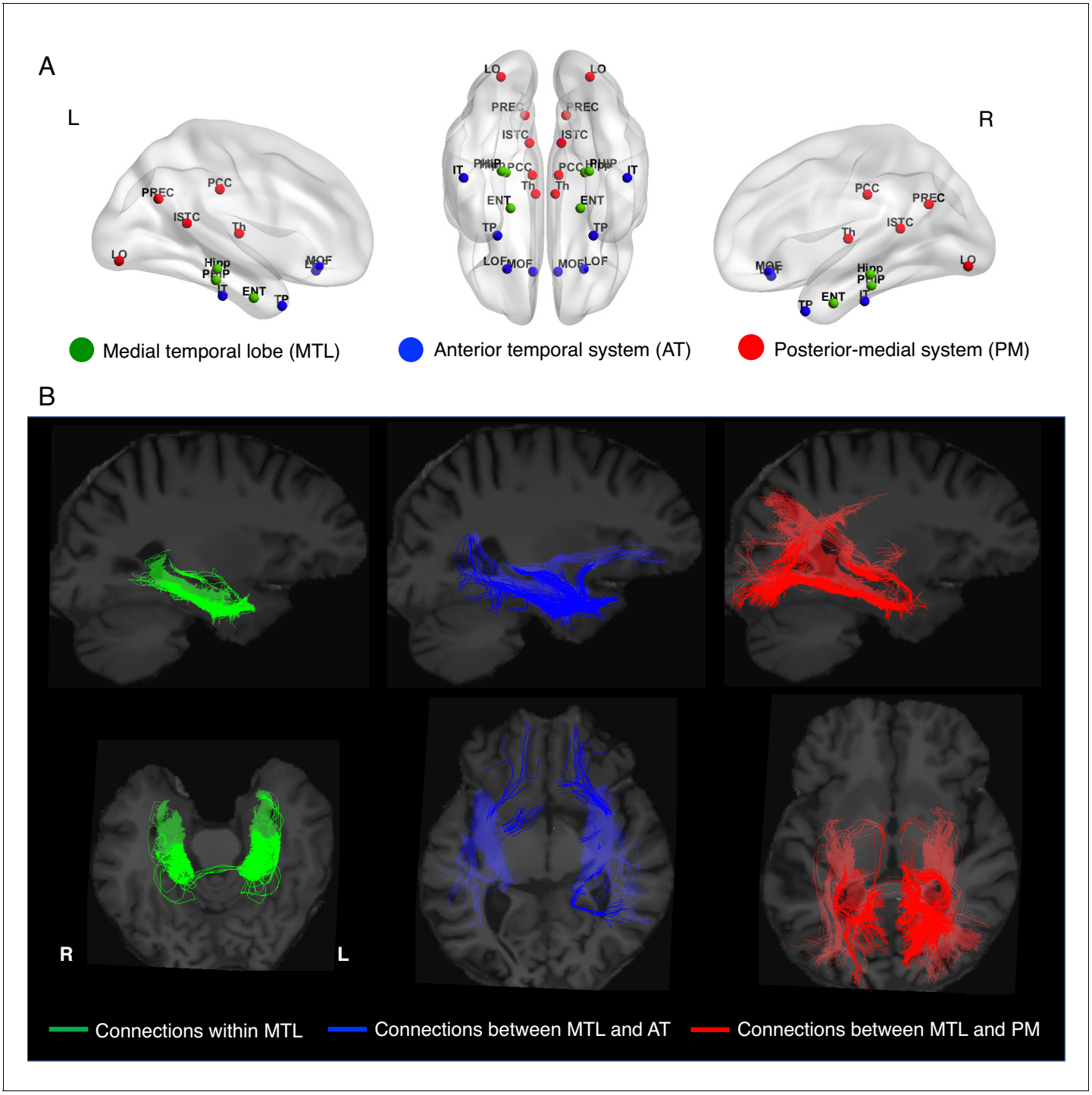

Figure 1. Regions of interests. (**A**) Regions of interests are identified based on the Desikan-Killiany Atlas and visualized with the BrainNet Viewer (***Xia et al., 2013***). The medial temporal lobe (MTL) includes bilateral entorhinal cortex (ENT), hippocampus (HIP), and parahippocampal gyrus (PHIP). The anterior-temporal (AT) system includes bilateral inferior temporal cortex (IT), temporal pole (TP), and lateral and medial orbitofrontal cortex (LOF/MOF), while the posterior-medial (PM) system includes bilateral posterior and isthmus cingulate (PCC/ISTC), lateral occipital cortex (LO), precuneus (PREC), and thalamus (TH). (**B**) Visualization of connections between MTL-related structures in a representative participant with TractVis (***Wang and Wedeen, 2007***).

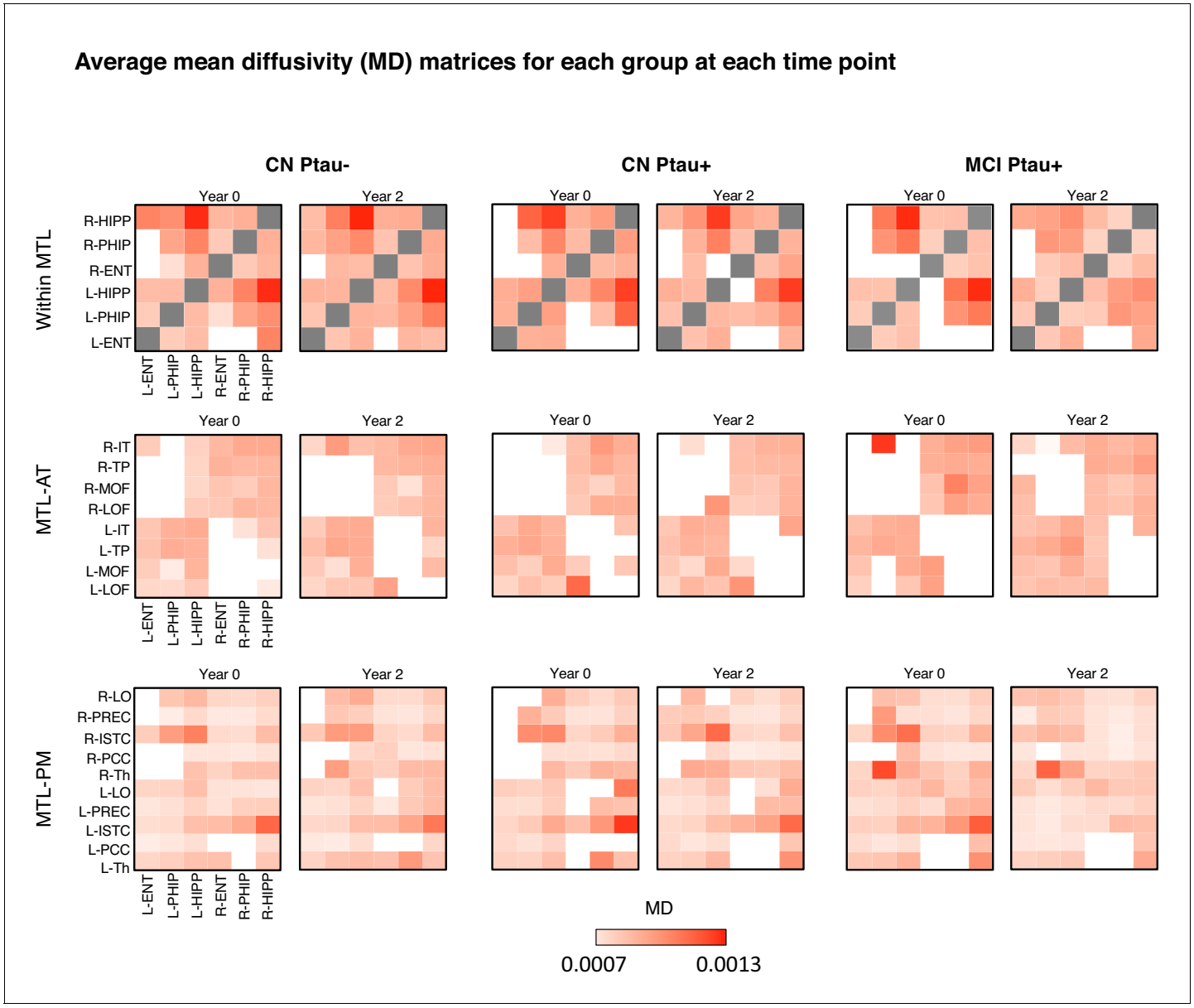

Figure 1—figure supplement 1. Average mean diffusivity (MD) matrices for each group at each time point. Please note that the white color indicates that no streamline was generated between the region of interest pairs in any of the participants within the group.

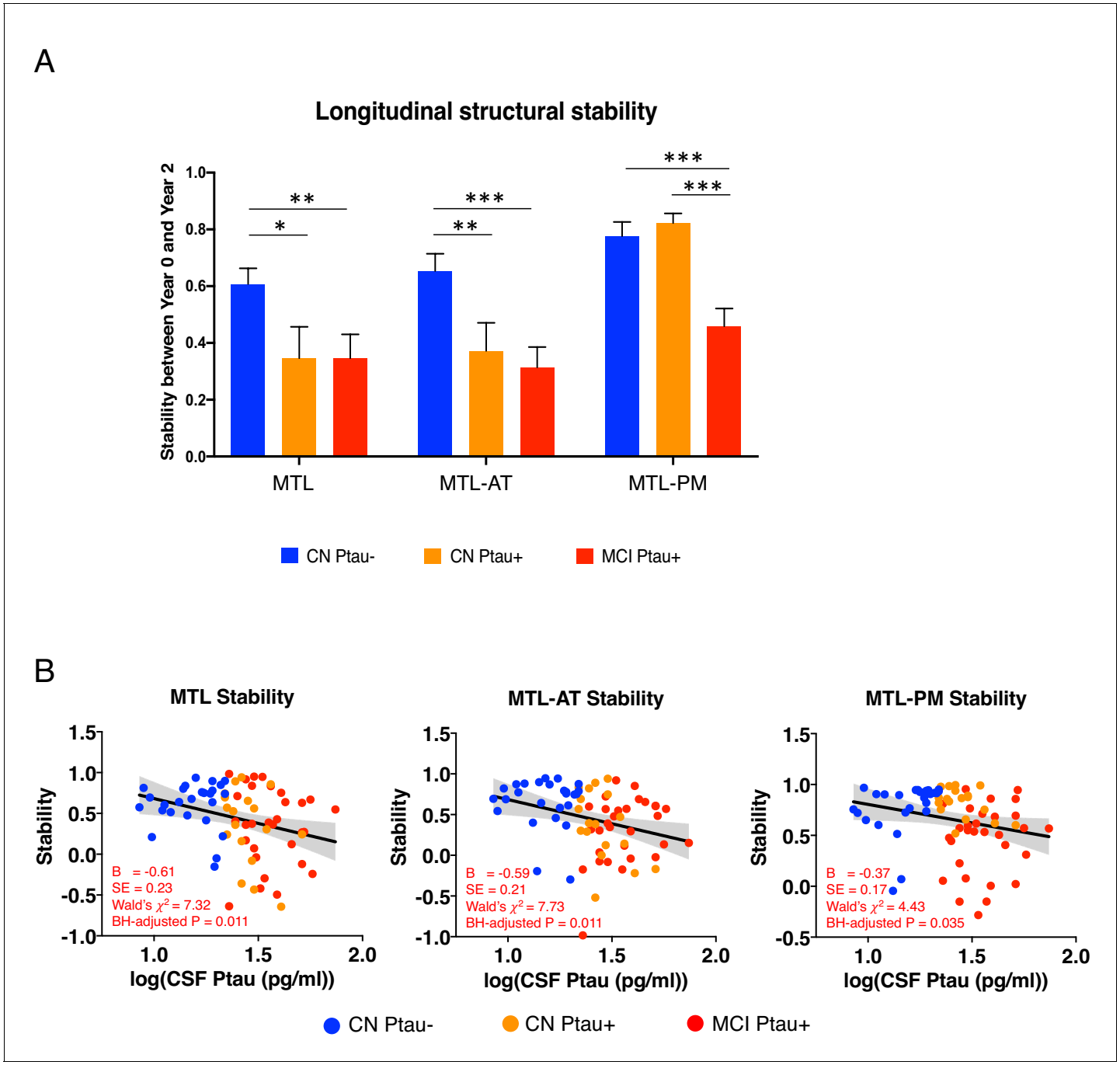

Figure 2. Relationship between baseline CSF Ptau and MTL structural stability. (**A**) Structural stability within MTL, MTL-AT, and MTL-PM for CN Ptau– (blue), CN Ptau+ (orange), and MCI Ptau+ (red) groups. Asterisk represents significant group comparison. *p < 0.05; **p < 0.01; ***p < 0.001. (**B**) Relationship of baseline CSF Ptau levels and structural stability within MTL, MTL-AT, and MTL-PM for the entire sample.

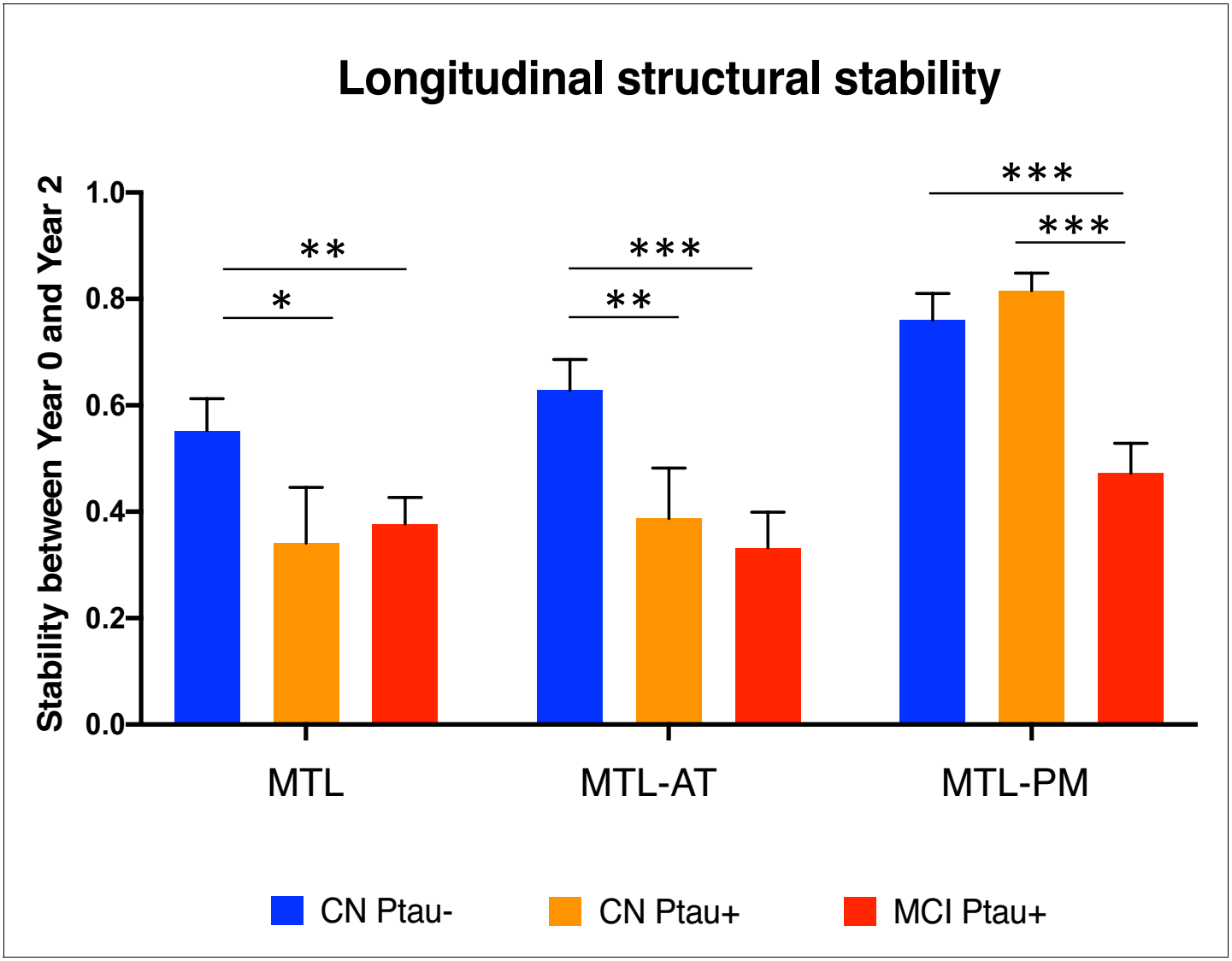

Figure 2—figure supplement 1. Group comparisons without the exclusion of eight participants.

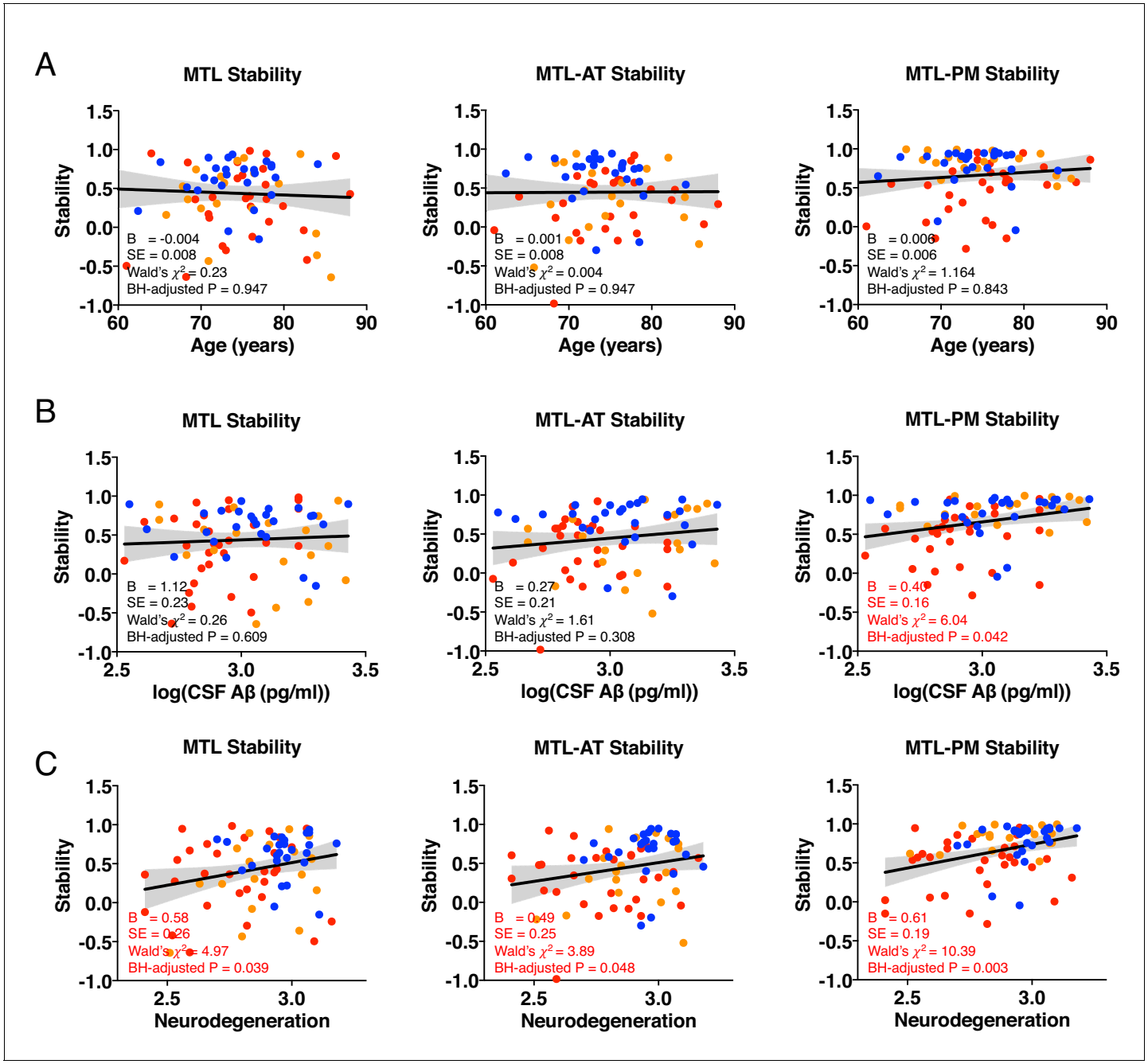

Figure 3. The effect of age (**A**), CSF Aβ pathology (**B**), and neurodegeneration (**C**) on the structural stability within MTL, MTL-AT, and MTL-PM in the whole sample. N: neurodegeneration; higher values indicate greater cortical thickness and lower severity in neurodegeneration.

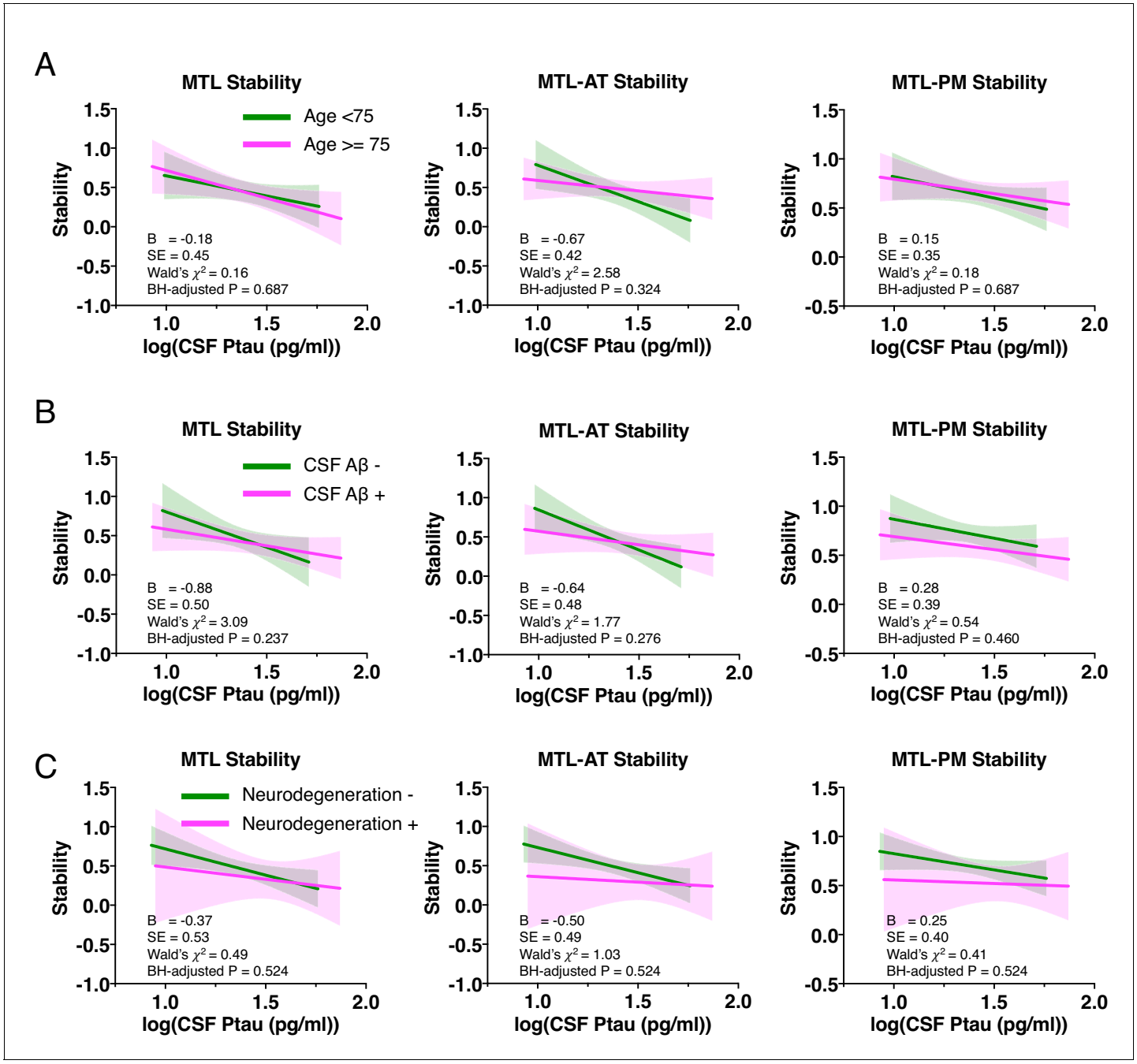

Figure 4. The effect of age (**A**), CSF Aβ pathology (**B**), and neurodegeneration (**C**) on the relationship between baseline CSF Ptau levels and the structural stability within MTL, MTL-AT, and MTL-PM in the whole sample.

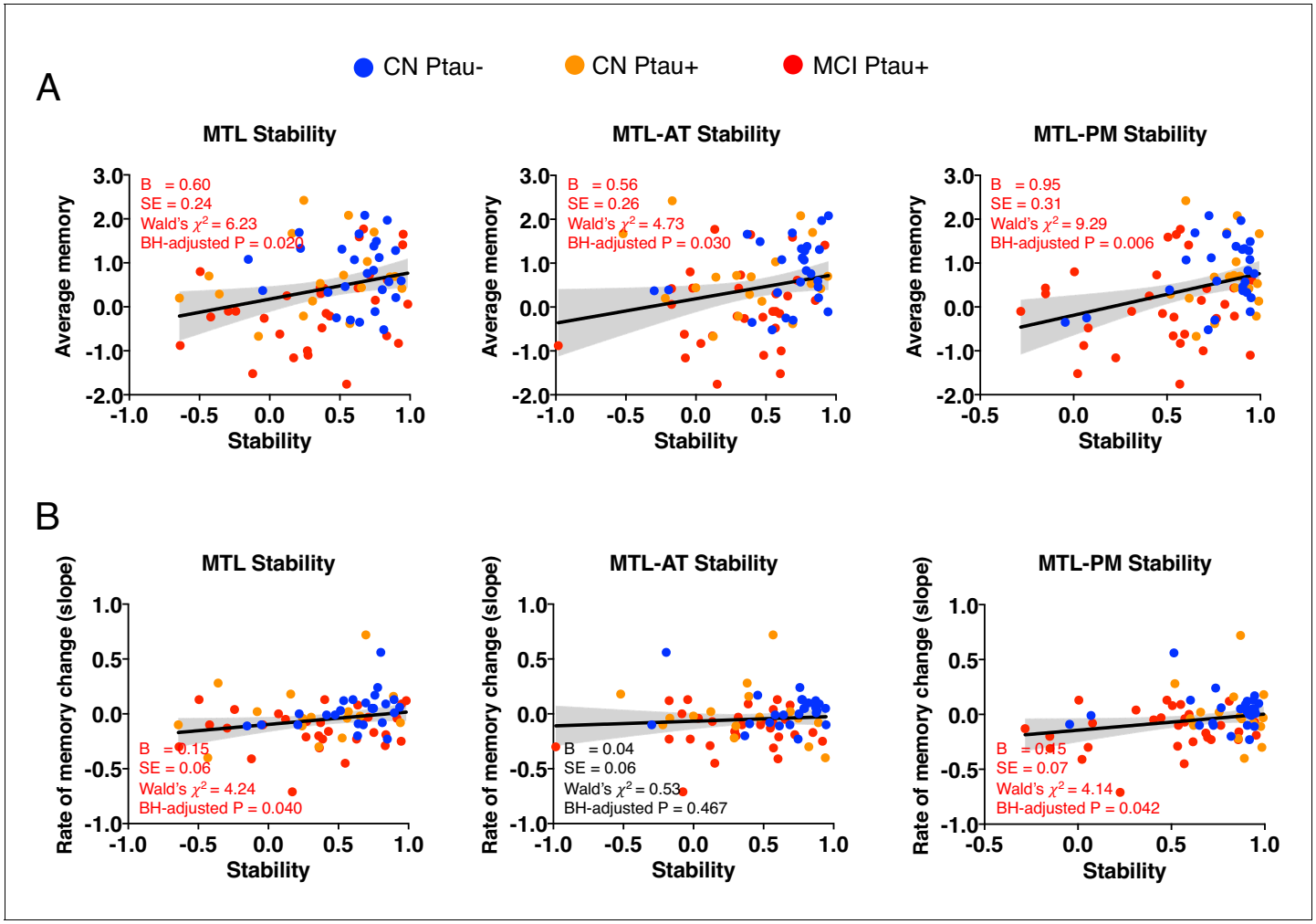

Figure 5. MTL structural stability predicts episodic memory. (**A**) Relationship of average episodic memory over 5 years and the structural stability in the whole sample. (**B**) Relationship of episodic memory decline rate and the structural stability in the whole sample.

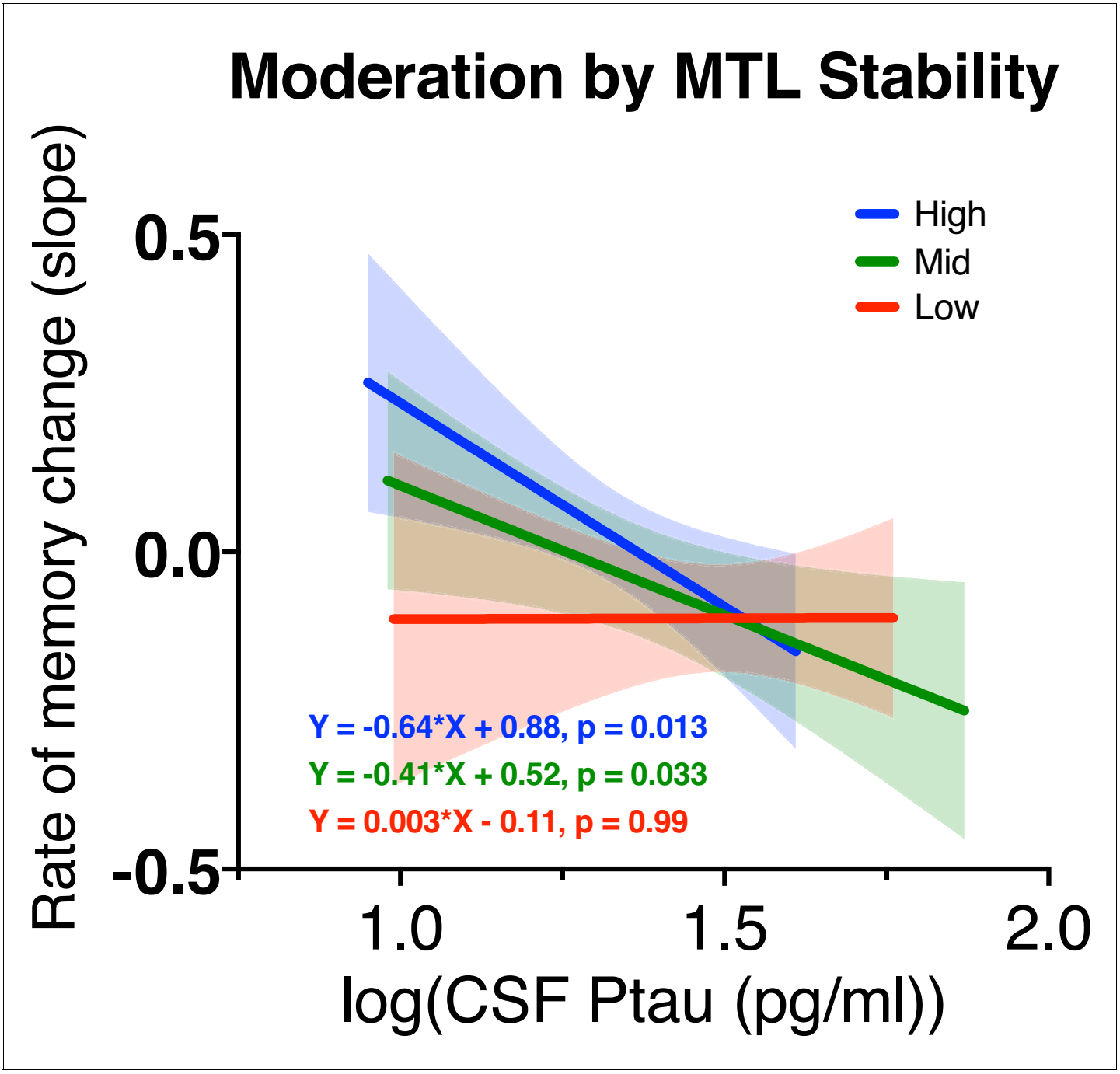

Figure 6. The moderating effect of medial temporal lobe (MTL) structural stability on the relationship between Ptau and rate of memory change. The plot shows how structural stability within MTL affected the relationship between Ptau and rate of memory change. Participants were divided into terciles based on their MTL stability. The lowest tercile is shown in red, the middle in green, and the highest in blue. P-values indicate whether the slope of the regression line is significantly different from zero for each tercile separately.