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Supporting Information for
Intersubject similarity in neural representations underlies shared episodic memory content.

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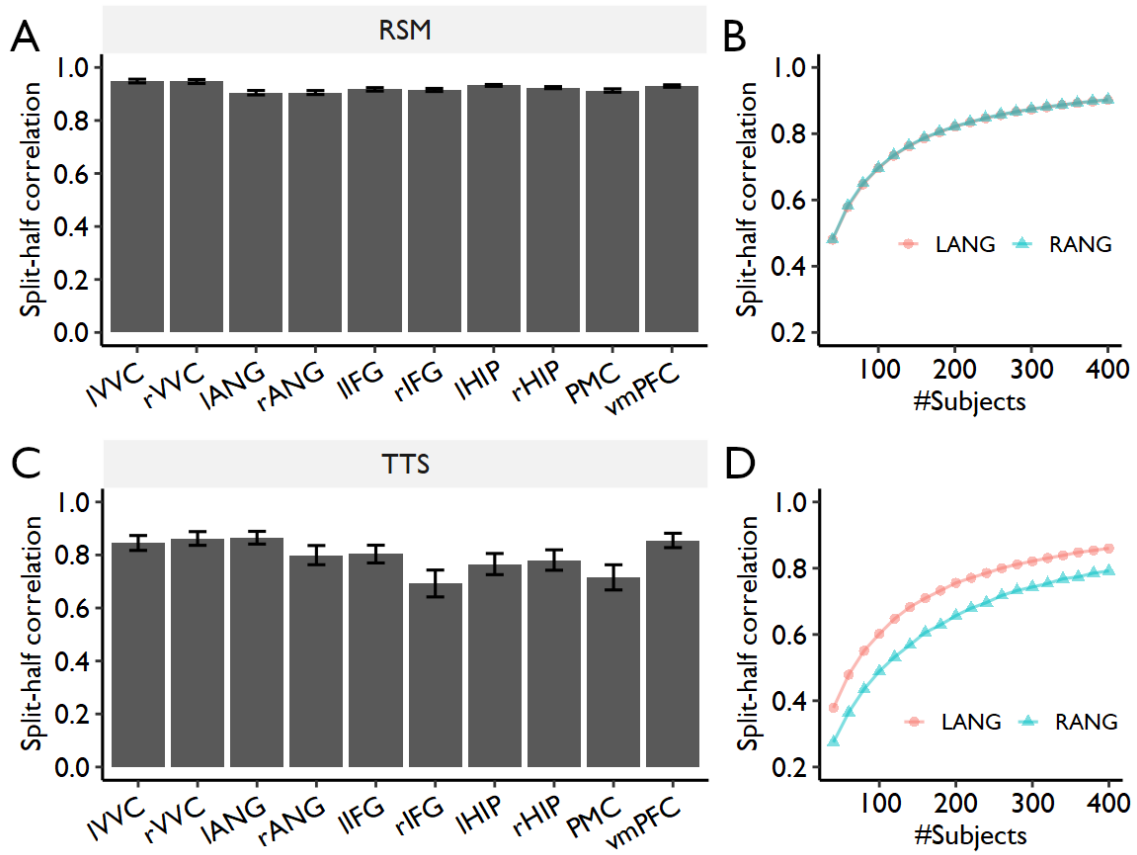Figures S1 to S7

Supporting Figures

Fig. S1. The reliability of canonical representational similarity matrix (RSM) and trial-level time series (TTS). (A) Split-half correlation of group-averaged RSM based on all participants (n = 415). Bars and error bars represent the mean correlation coefficients and standard deviations across 1000 repetitions, respectively. (B) The split-half correlation of the group-averaged RSM in the ANG increased with the sample size. (C) Split-half correlation of group-averaged TTS based on all participants (n = 415). Bars and error bars represent the mean correlation coefficients and standard deviations across 1000 repetitions, respectively. (D) The split-half correlation of the group-averaged TTS in the ANG increased with the sample size. VVC, ventral visual cortex; PMC, posterior medial cortex; HIP, hippocampus; ANG, angular gyrus; IFG, inferior frontal gyrus; vmPFC, ventromedial prefrontal cortex.
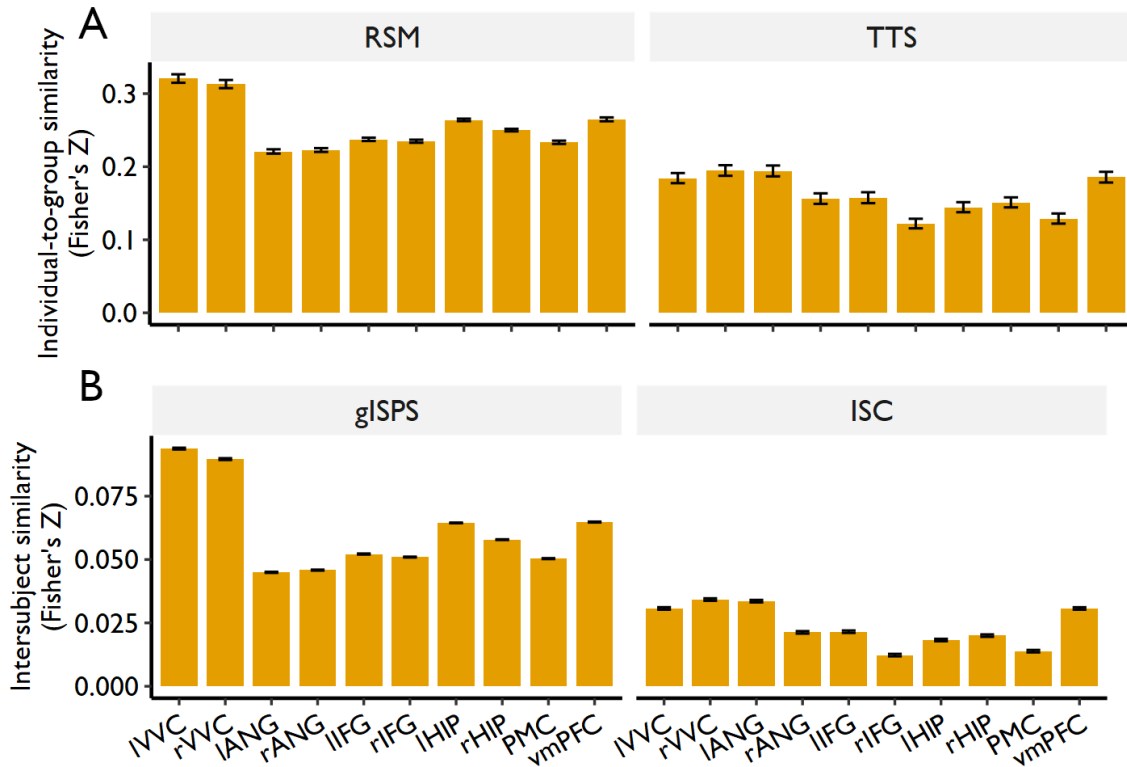
Fig. S2. Individual-to-group and intersubject similarities for different ROIs. (A) The averaged individual-to-group similarity of representational similarity matrix (RSM, left panel) and trial-level time series (TTS, right panel). Error bars represent standard deviations across individuals. Relatively lower similarities (or higher variabilities) in neural representations (RSM) were found in the PMC, ANG, vmPFC, HIP, IFG than in the VVC, and relatively lower similarities (or higher variabilities) in activity profile (TTS) were found in the PMC, HIP, and IFG than in the VVC. (B) The intersubject similarity of RSM or gISPS (left panel) and TTS or ISC (left panel). Error bars represent standard deviations across participant pairs. Relatively lower similarities (or higher variabilities) in gISPS were found in the PMC, ANG, IFG, HIP, vmPFC than in the VVC, and relatively lower similarities (or higher variabilities) in ISC were found in the PMC, HIP, and IFG than in the VVC. gISPS, global intersubject similarity; ISC, intersubject correlation; lVVC, left ventral visual cortex; rVVC, right ventral visual cortex; lANG, left angular gyrus; rANG, right angular gyrus; lIFG, left inferior frontal gyrus; rIFG, right inferior frontal gyrus; lHIP, left hippocampus; rHIP, right hippocampus; PMC, posterior medial cortex; vmPFC, ventromedial prefrontal cortex.
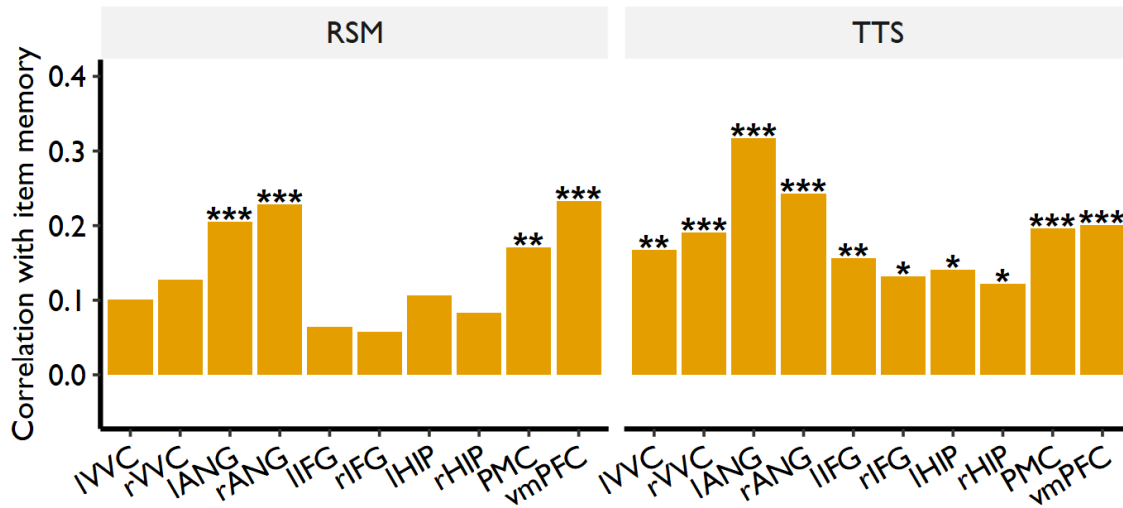
Fig. S3. Similarity to group-averaged representations (RSM) and activities (TTS) predicted individuals' item memory. * pHolm < 0.05, ** pHolm < 0.01, *** pHolm < 0.001. lVVC, left ventral visual cortex; rVVC, right ventral visual cortex; lANG, left angular gyrus; rANG, right angular gyrus; lIFG, left inferior frontal gyrus; rIFG, right inferior frontal gyrus; lHIP, left hippocampus; rHIP, right hippocampus; PMC, posterior medial cortex; vmPFC, ventromedial prefrontal cortex.
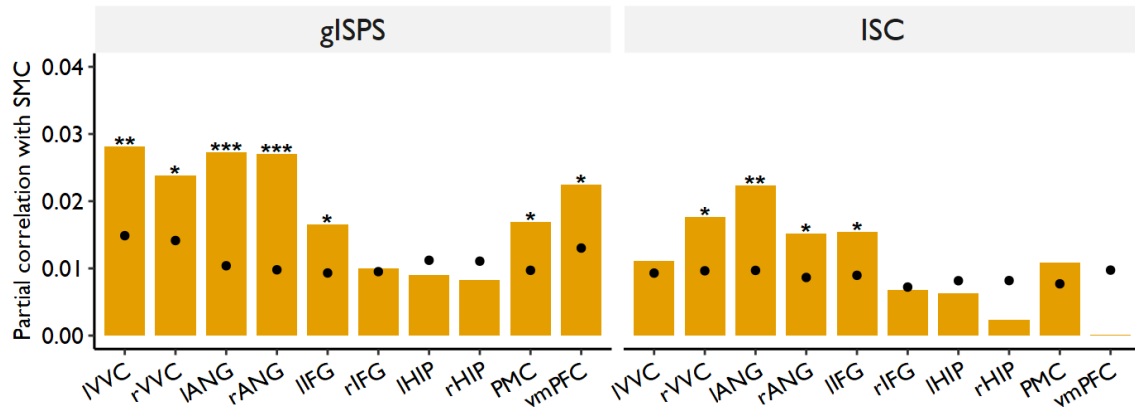
Fig. S4. The global intersubject pattern similarity (gISPS) and intersubject correlation (ISC) predicted shared memory content after controlling for memory ability. The black dots represent 95% quantiles of permutation results. * pHolm < 0.05, ** pHolm < 0.01, *** pHolm < 0.001. lVVC, left ventral visual cortex; rVVC, right ventral visual cortex; lANG, left angular gyrus; rANG, right angular gyrus; lIFG, left inferior frontal gyrus; rIFG, right inferior frontal gyrus; lHIP, left hippocampus; rHIP, right hippocampus; PMC, posterior medial cortex; vmPFC, ventromedial prefrontal cortex.
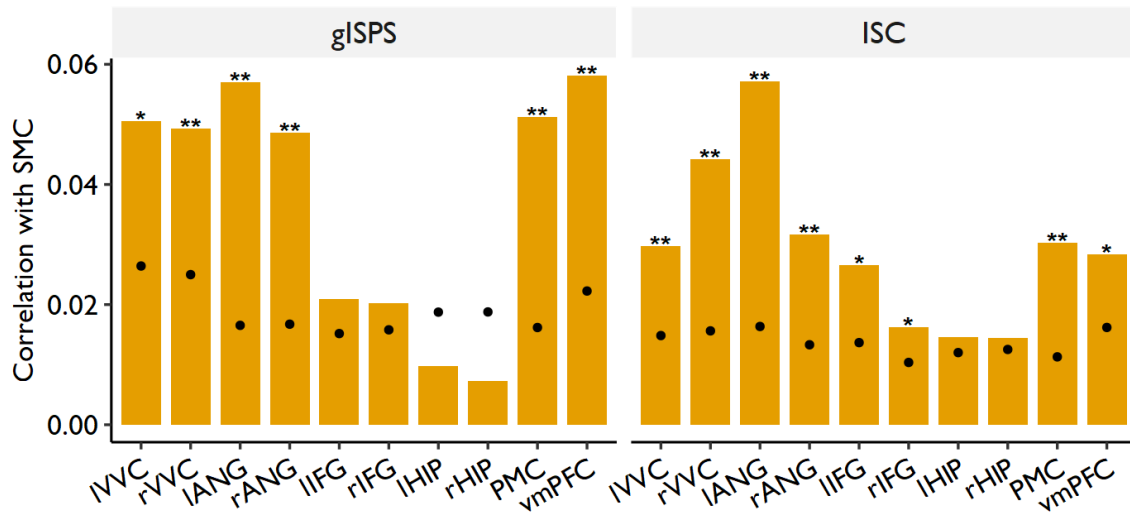
Fig. S5. The global intersubject pattern similarity (gISPS) and intersubject correlation (ISC) predicted shared memory content based on fine-grained memory scores. The black dots represent 95% quantiles of permutation results. * pHolm < 0.05, ** pHolm < 0.01, *** pHolm < 0.001. lVVC, left ventral visual cortex; rVVC, right ventral visual cortex; lANG, left angular gyrus; rANG, right angular gyrus; lIFG, left inferior frontal gyrus; rIFG, right inferior frontal gyrus; lHIP, left hippocampus; rHIP, right hippocampus; PMC, posterior medial cortex; vmPFC, ventromedial prefrontal cortex.
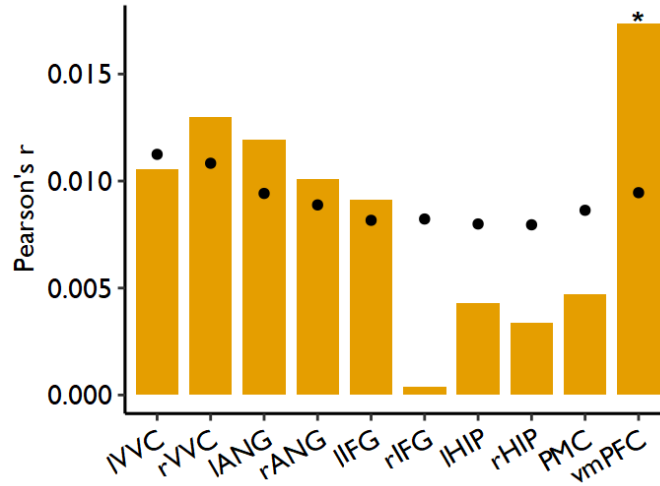
Fig. S6. The global pattern similarity based on 30 unique items weakly predicted shared memory content. The black dots represent 95% quantiles of permutation results. * pHolm < 0.05, ** pHolm < 0.01, *** pHolm < 0.001. lVVC, left ventral visual cortex; rVVC, right ventral visual cortex; lANG, left angular gyrus; rANG, right angular gyrus; lIFG, left inferior frontal gyrus; rIFG, right inferior frontal gyrus; lHIP, left hippocampus; rHIP, right hippocampus; PMC, posterior medial cortex; vmPFC, ventromedial prefrontal cortex.
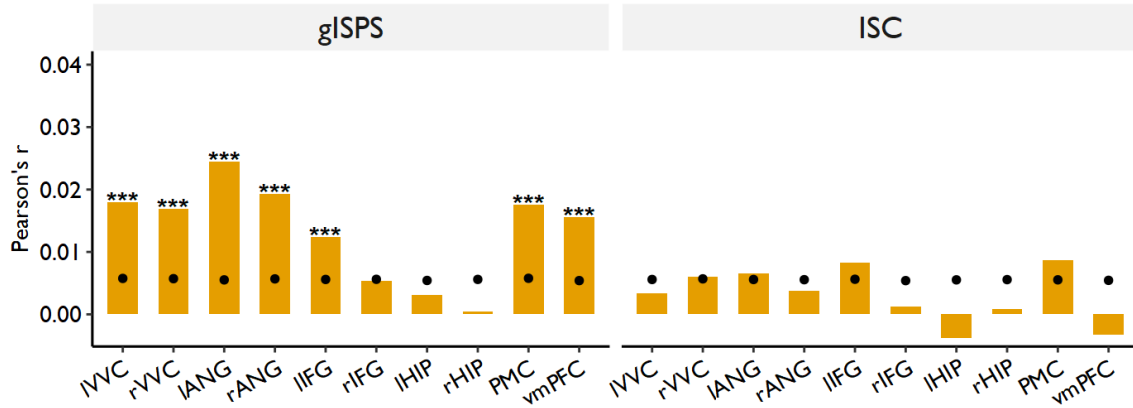
Fig. S7. The global intersubject pattern similarity (gISPS), but not the intersubject correlation (ISC), predicted shared memory content after controlling the similarity to group-averaged neural patterns or activities. The black dots represent 95% quantiles of permutation results. * pHolm < 0.05, ** pHolm < 0.01, *** pHolm < 0.001. lVVC, left ventral visual cortex; rVVC, right ventral visual cortex; lANG, left angular gyrus; rANG, right angular gyrus; lIFG, left inferior frontal gyrus; rIFG, right inferior frontal gyrus; lHIP, left hippocampus; rHIP, right hippocampus; PMC, posterior medial cortex; vmPFC, ventromedial prefrontal cortex.