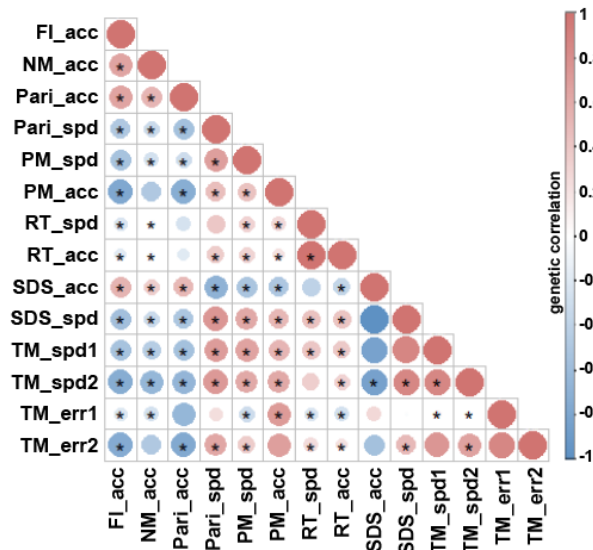
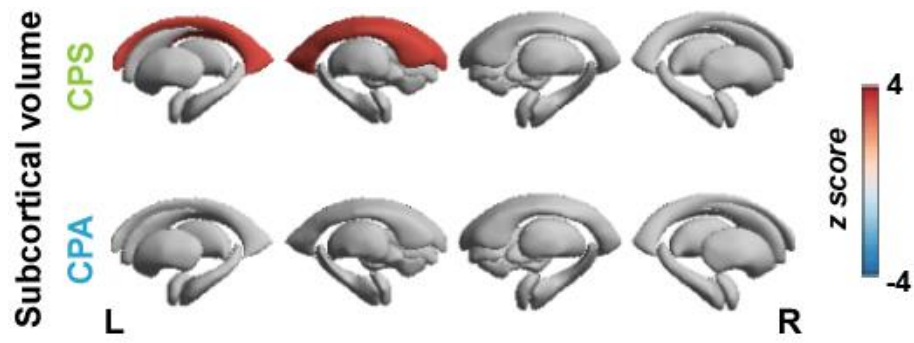
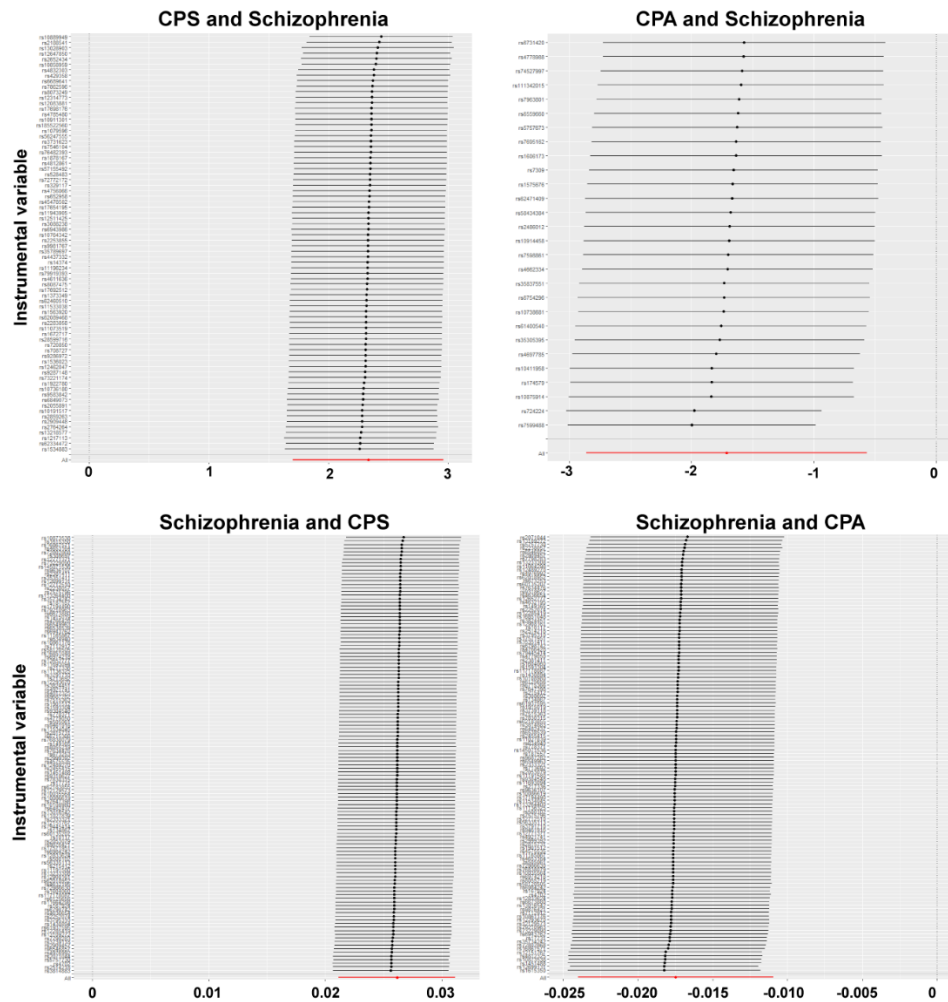




Supplementary Figure 1. Genetic correlation estimations for 14 cognitive traits using LDSC. The size and color indicate the genetic correlation coefficients, and the sign (*) indicates the statistical significance after Bonferroni correction ($p < 0.05/91$). A full description of the abbreviation is in the Supplementary Data 2.

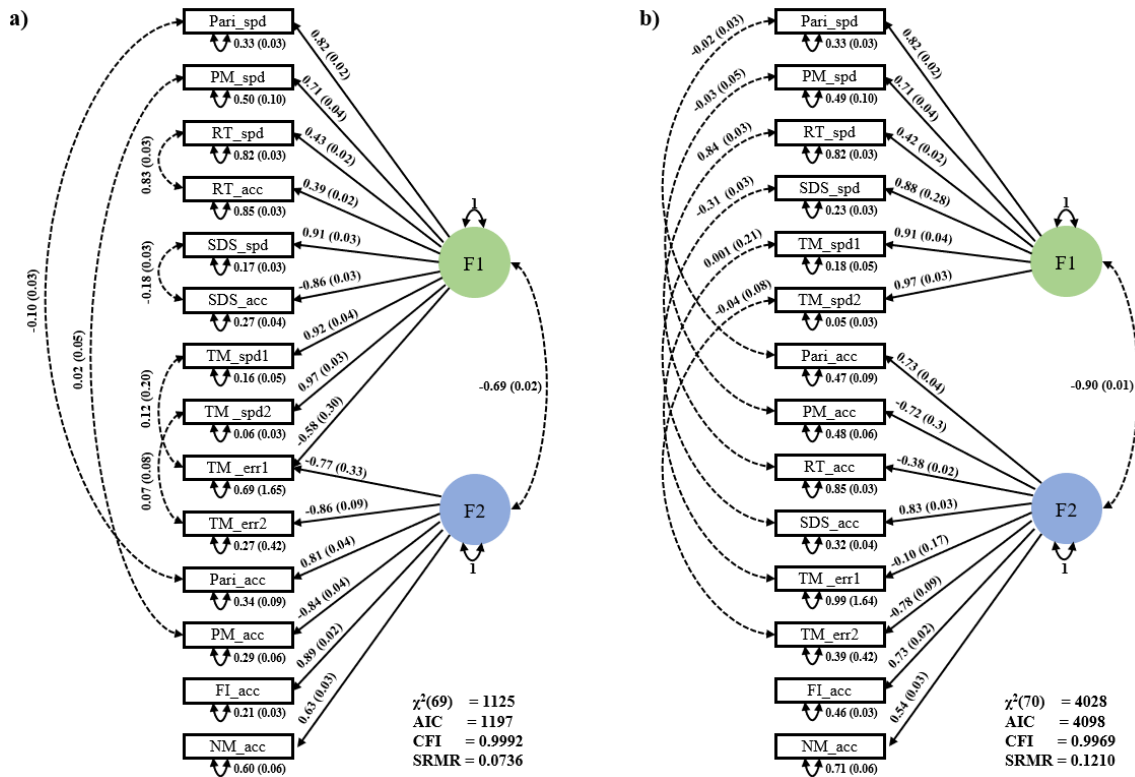


Supplementary Figure 2. Genetic correlation between the CPS/CPA and brain volumes of subcortical areas. The color indicated the standard z score of the genetic correlation (estimation/standard error), and non-significant results were grayed in the figure. CPS = cognitive processing speed, CPA = cognitive processing accuracy.



Supplementary Figure 3. Leave-one-out sensitivity analysis in the two-sample Mendelian randomization analyses. The x-axis indicates the estimation of the single instrumental variable (black line) and all the instrumental variables (red line). The error band indicates the estimation $\pm$ 95% CI of the causal effect for each SNP (effective sample size of the GWAS summary statistic of schizophrenia: $n = 57604$).

CPS = cognitive processing speed, CPA = cognitive processing accuracy.



Supplementary Figure 4. Comparison of two confirmatory factor models: a) Model based on loadings from exploratory factor analysis, b) Model based on a priori assumptions with loadings on accuracy and reaction time of cognitive tasks.

AIC = Akaike Information Criteria; CFI = Comparative Fit Index; SRMR = Standard Root Mean Square Residual.