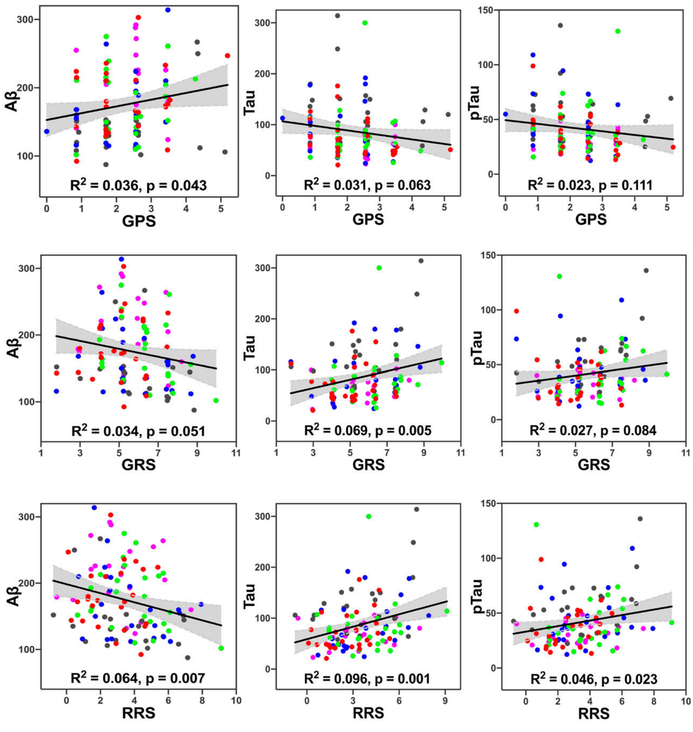
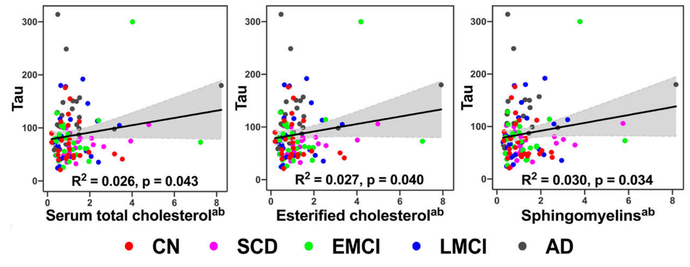
Figure 1. Regression Analyses Among Polygenic Scores, Serum Lipid Metabolites,[a] Cerebrospinal Fluid Core Biomarkers, and Cognitive Performance in the AD Spectrum*

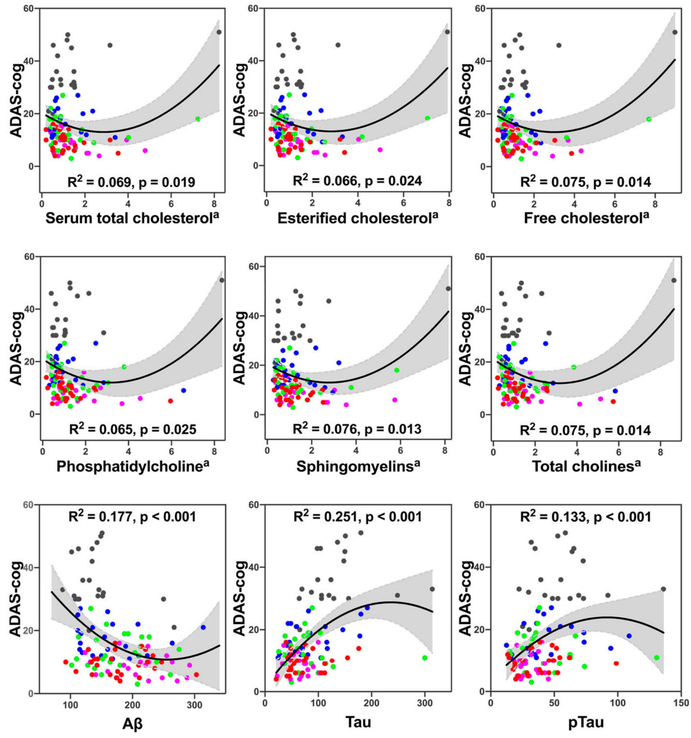
A: Linear regression between polygenic scores and cerebrospinal fluid biomarkers revealed that the GPS was correlated with Aβ levels but not total tau and p-tau levels; in contrast, GRS was significantly correlated with total tau levels and marginally associated with Aβ levels but not with p-tau levels, while RRS significantly influenced the Aβ, total tau, and p-tau levels in the AD spectrum.



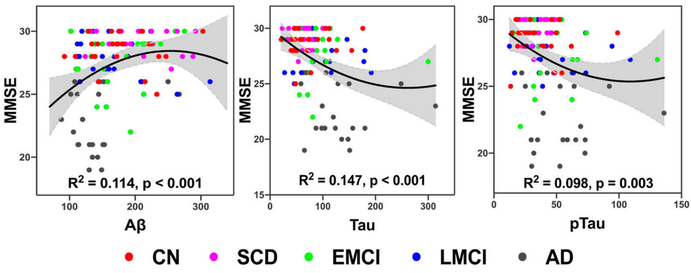
B: Significant linear correlations were found between several lipid metabolism–related markers and total tau but not Aβ and p-tau levels of cerebrospinal fluid in the AD spectrum.



C: Nonlinear correlations were found between lipid metabolites and ADAS-cog scores.



D: Nonlinear curves fitted between cerebrospinal fluid biomarkers and MMSE scores.



[a]For simplifying the calculation of various indicators, all data for lipids were standardized to facilitate data normally distributed transformed with the formula $z = (x - \mu)/\sigma$, for which x was the specific value, μ was the mean value, and σ the standard deviation. Then, the *z* values of lipids were transformed using an inverse logarithm algorithm with a base of 2. Considering the opposite effects of HDL compared with LDL or VLDL, the values of HDL-related markers were further converted into their reciprocal form.

[b]One-tailed *P* values < .05 were considered significant only in Figure 1B.

*Gray bands indicated 95% confidence intervals.

Abbreviations: Aβ = amyloid β peptides 1 to 42, AD = Alzheimer's disease, ADAS-cog = Alzheimer's Disease Assessment Scale–13-item cognitive subscale, CN = cognitively normal, EMCI = early amnestic mild cognitive impairment, GPS = genetic protective score, GRS = genetic risk score, HDL = high-density lipoprotein, LDL = low-density lipoprotein, LMCI = late mild cognitive impairment, MMSE = Mini-Mental State Examination, p-tau = tau phosphorylated at the threonine-181 position, RRS = relative risk score, SCD = subjective cognitive decline, VLDL = very low density lipoprotein.