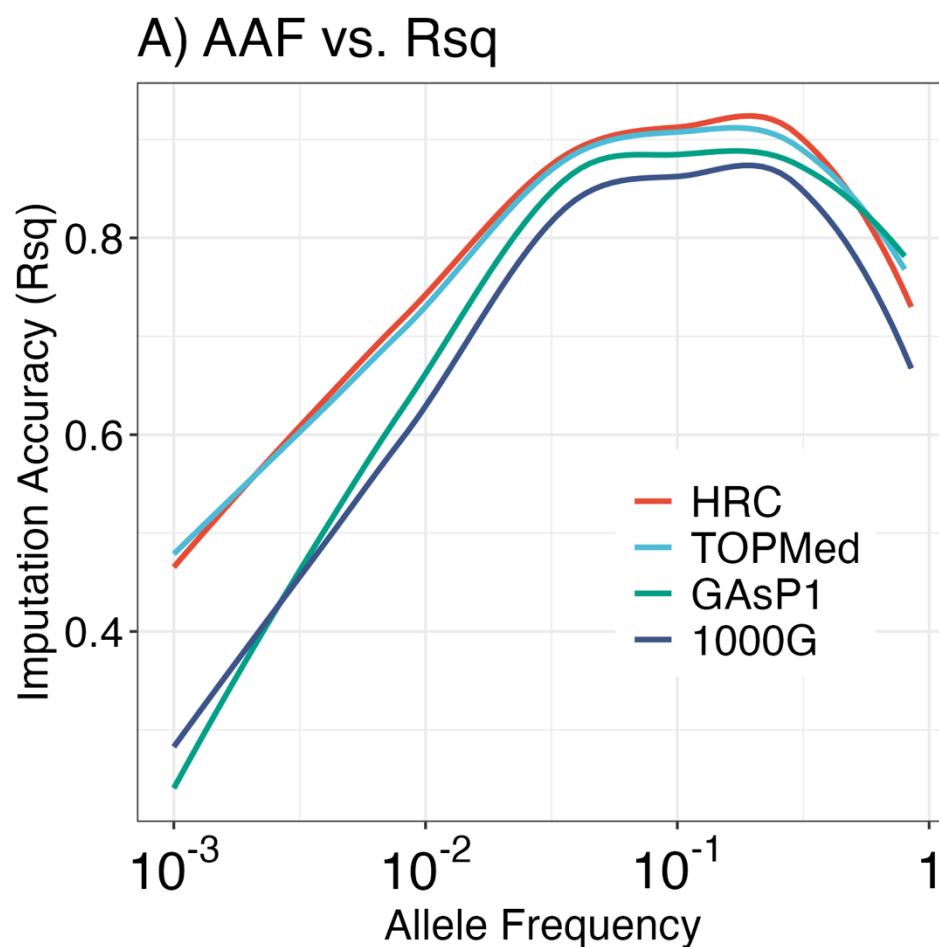
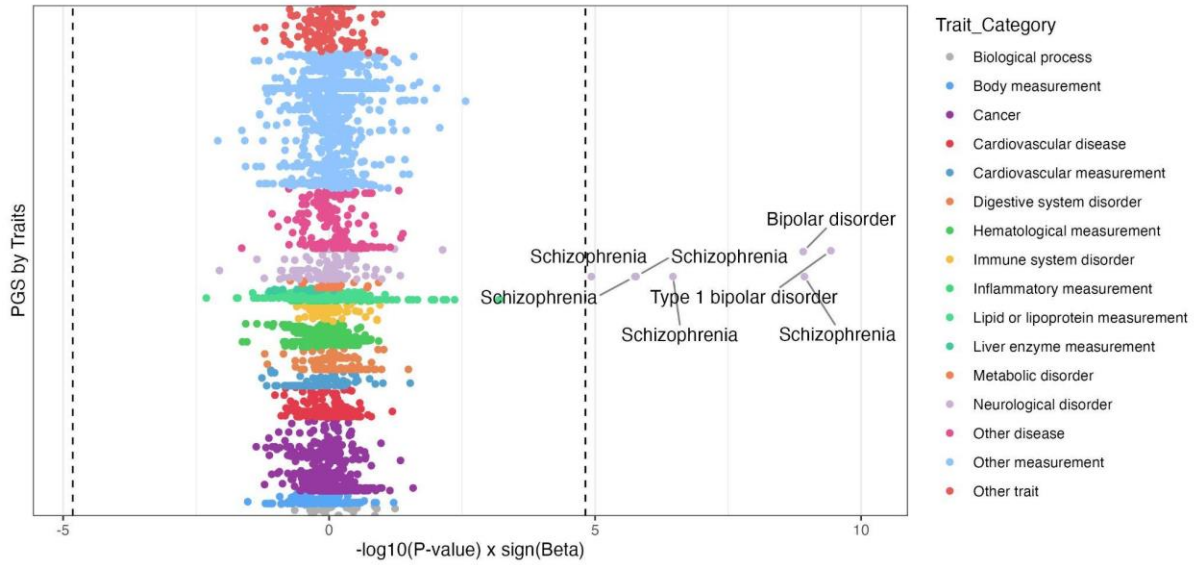


SFigure 1: Comparative Imputation Accuracy Across Allele Frequencies on four imputation reference panels: HRC, TOPMed, GAsP1, and 1000G. Imputation with HRC reference panel showed superior accuracy compared to other panels across allele frequency spectrum.

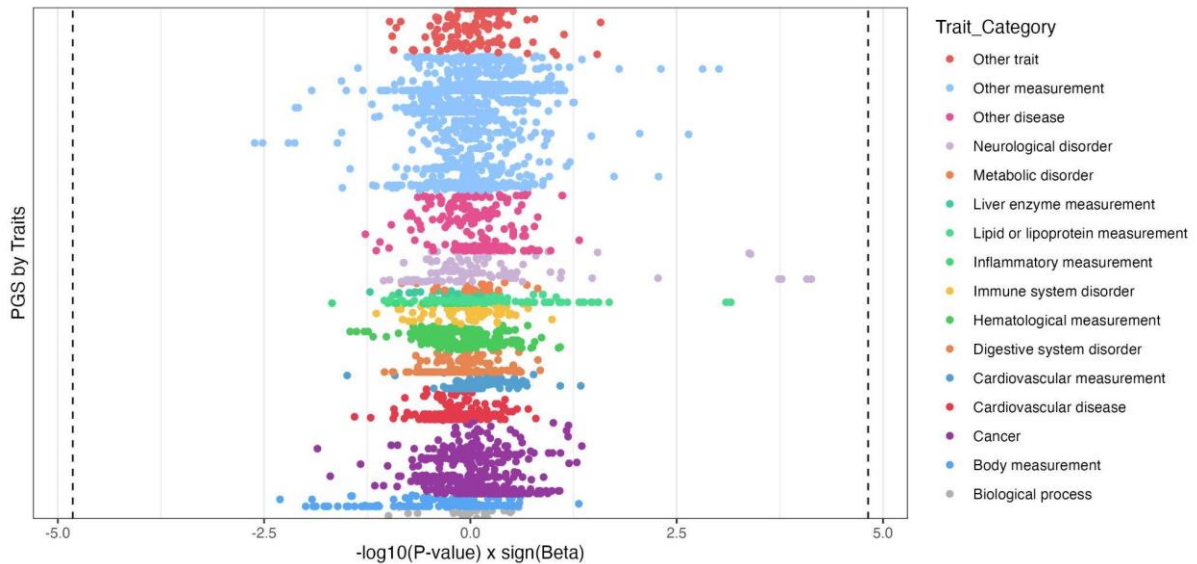


SFigure 2: Exploratory Multi-Polygenic Score (MultiPGS) Associations. The plot shows $-\log_{10}(\text{P-value}) \times \text{sign}(\beta)$ for each trait within 18 categories in relation to Bipolar Disorder, Obsessive-Compulsive Disorder, and Externalizing traits. The traits are organized according to the Experimental Factor Ontology (EFO) and referenced in the PGS Catalog. The dotted line signifies the significance threshold adjusted for multiple testing at $-\log_{10}(0.05/\text{number of tests})$.

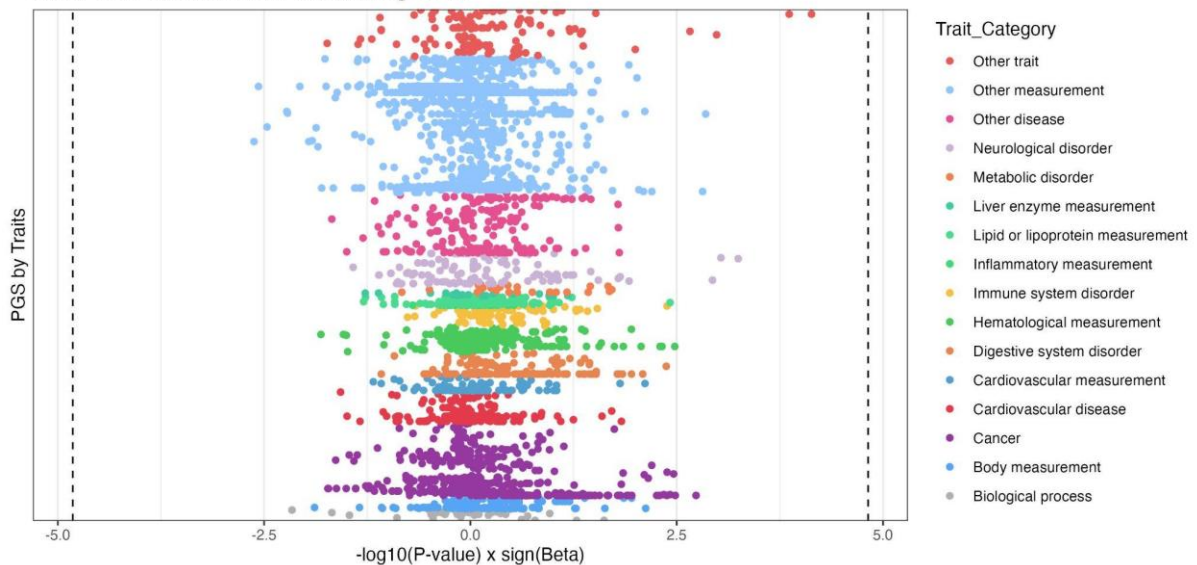
MultipGS Association for BPAD Cases vs Controls



MultipGS Association for OCD Cases vs Controls

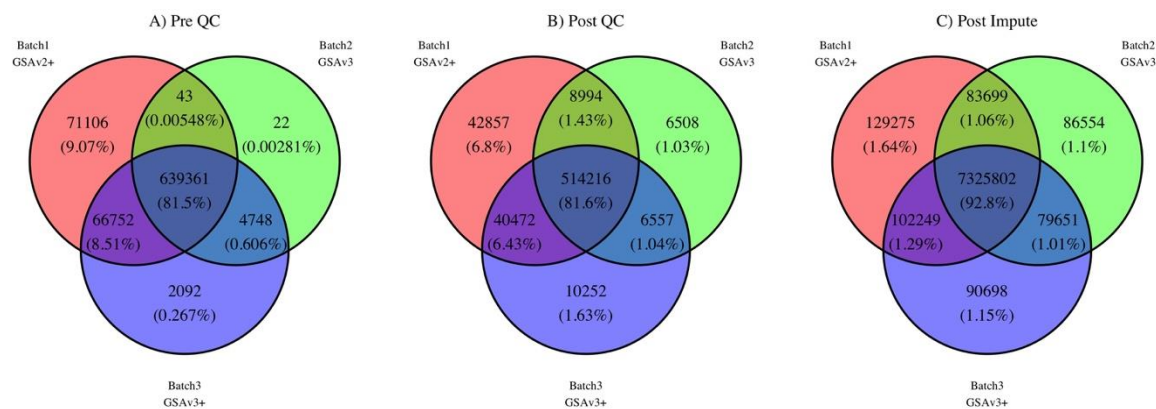


MultipGS Association for Externalizing Traits



SFigure 3. Quality Control of SNP Genotyping Across Different Batches:

The Venn diagrams depict SNP intersections across three batches using the Global Screening Array, before (A) and after (B) quality control (QC), and following imputation with the HRC reference panel (C). They reveal a significant overlap of approximately 80-90% in all batches, consistent both pre and post QC and imputation. The '+' symbol denotes batches enhanced with additional custom markers from the Infinium PsychArray-24's focused content panel



[STable2: MultiPGS results](#)