

## ***Supplementary Figures***

**Supplementary Figure S1. Funnel plot for calcium on OCD.**

**Supplementary Figure S2. Funnel plot for ASD on 25OHD.**

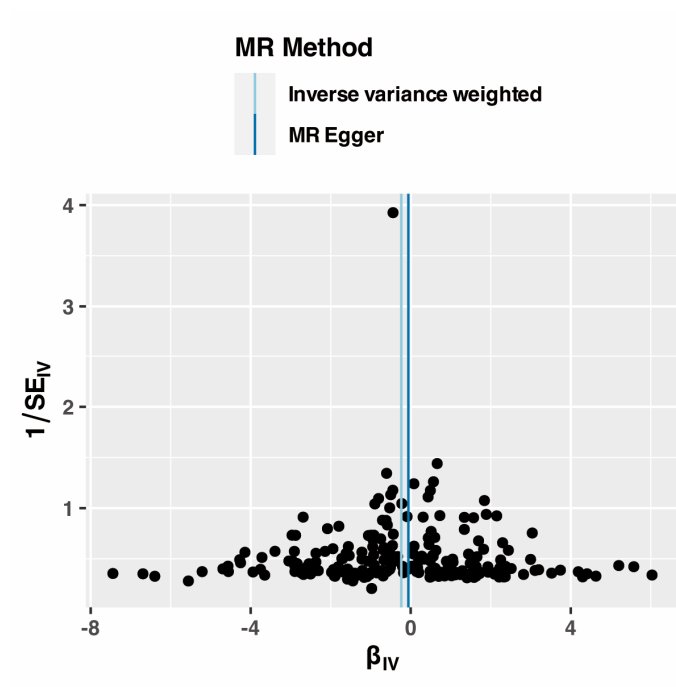
**Supplementary Figure S3. Funnel plot for ASD on FGF23.**

**Supplementary Figure S4. Funnel plot for SCZ on 25OHD.**

**Supplementary Figure S5. Funnel plot for BD on 25OHD.**

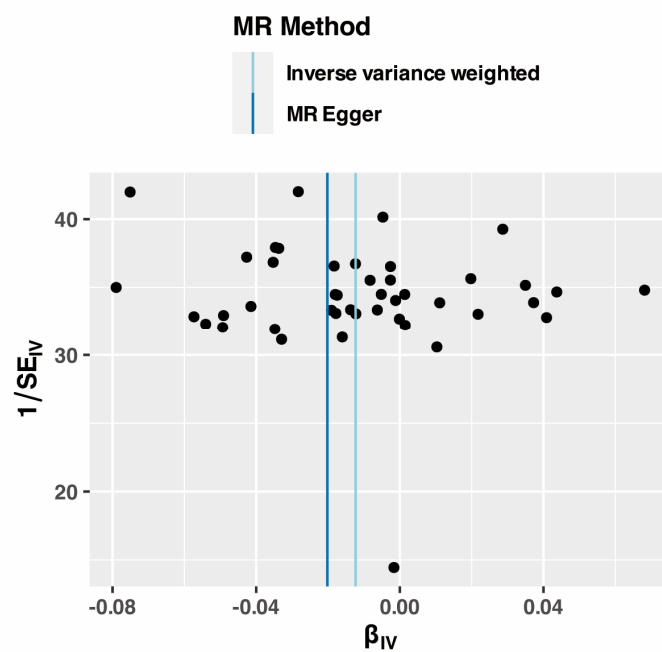
**Supplementary Figure S6. Funnel plot for ADHD on calcium.**

**Supplementary Figure S7. Leave-one-out analysis of putative causal effects.**



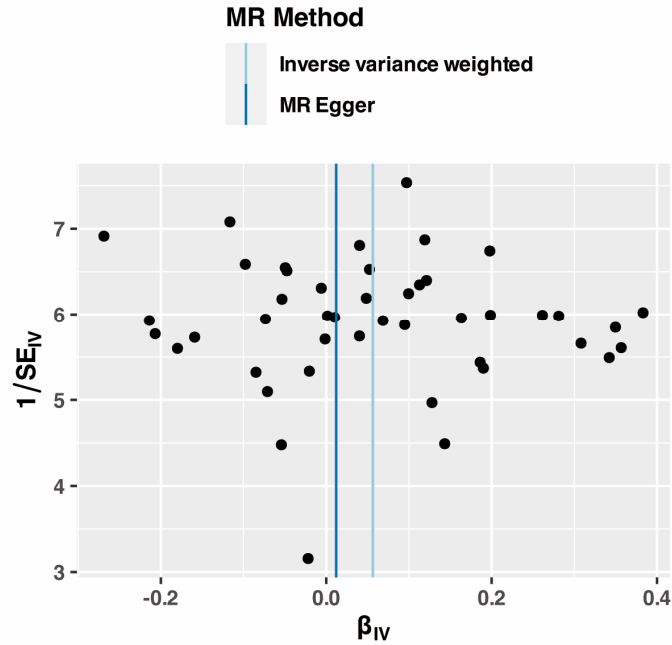
**Supplementary Figure S1.** Funnel plot for calcium on OCD.

Each point is a single nucleotide polymorphism. OCD, obsessive-compulsive disorder; SE, standard error.



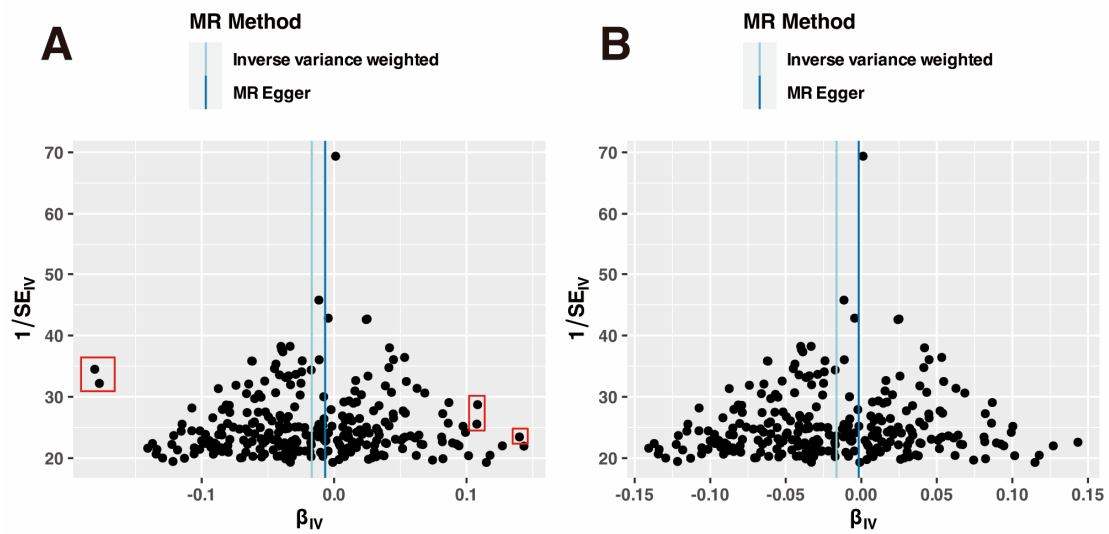
**Supplementary Figure S2.** Funnel plot for ASD on 25OHD.

Each point is a single nucleotide polymorphism. ASD, autism spectrum disorder; 25OHD, serum 25-Hydroxyvitamin D levels; SE, standard error.



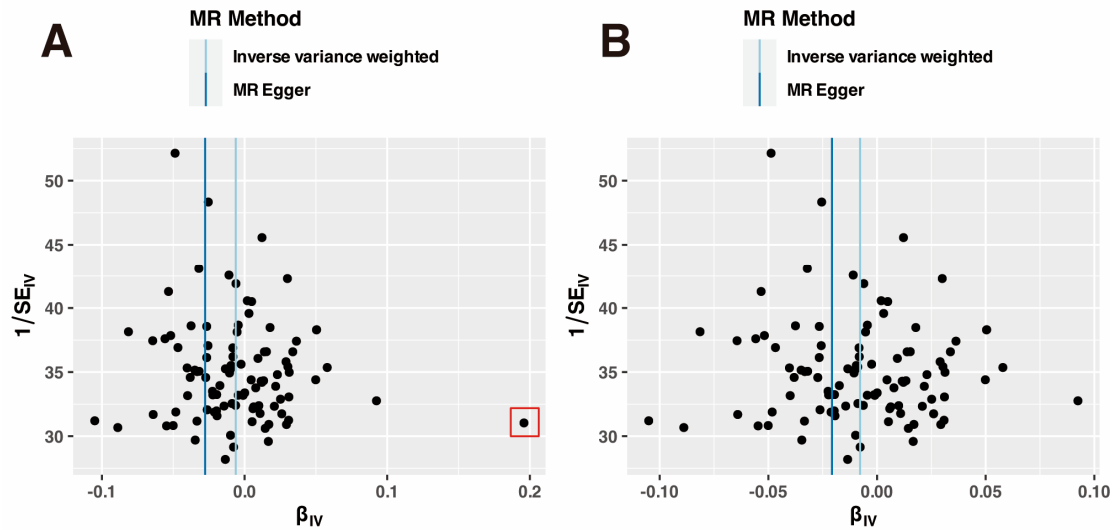
**Supplementary Figure S3.** Funnel plot for ASD on FGF23.

Each point is a single nucleotide polymorphism. ASD, autism spectrum disorder; FGF23, fibroblast growth factor 23; SE, standard error.



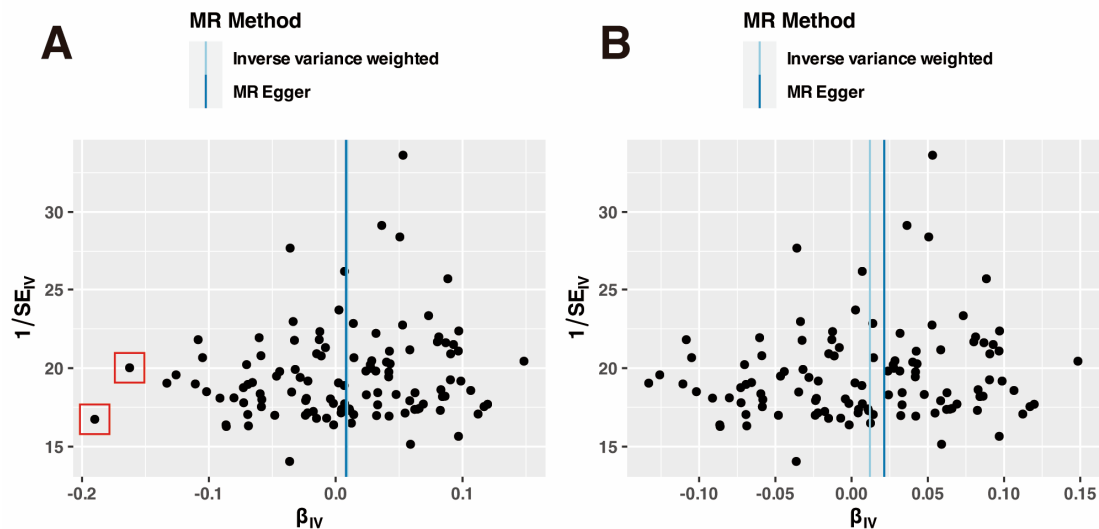
**Supplementary Figure S4.** Funnel plot for SCZ on 25OHD. (A) The funnel plot of SCZ-25OHD results before removal of SNPs. (B) The funnel plot of SCZ-25OHD results after removal of SNP rs10873538, rs2252074, rs6690619, rs6798742, and rs9304548.

The global MR pleiotropy residual sum and outlier (MR-PRESSO) test was introduced to explore the possible outlier SNPs. Each point is a single nucleotide polymorphism. SCZ, schizophrenia; 25OHD, serum 25-Hydroxyvitamin D levels; SE, standard error.



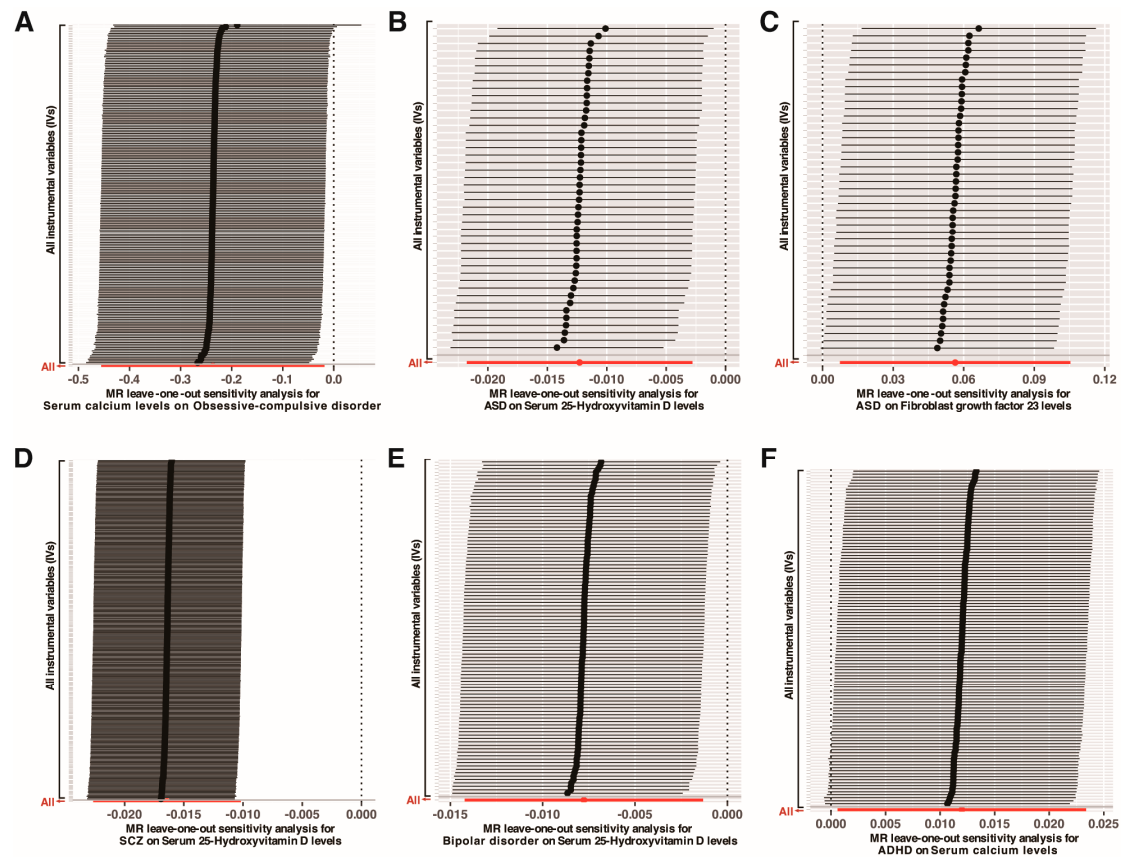
**Supplementary Figure S5.** Funnel plot for BD on 25OHD. (A) The funnel plot of BD-25OHD results before removal of SNPs. (B) The funnel plot of BD-25OHD results after removal of SNP rs4301023.

The global MR pleiotropy residual sum and outlier (MR-PRESSO) test was introduced to explore the possible outlier SNPs. Each point is a single nucleotide polymorphism. BD, bipolar disorder; 25OHD, serum 25-Hydroxyvitamin D levels; SE, standard error.



**Supplementary Figure S6.** Funnel plot for ADHD on calcium. (A) The funnel plot of ADHD-calcium results before removal of SNPs. (B) The funnel plot of ADHD-calcium results after removal of SNP rs34008721 and snp139950543.

The global MR pleiotropy residual sum and outlier (MR-PRESSO) test was introduced to explore the possible outlier SNPs. Each point is a single nucleotide polymorphism. ADHD, attention-deficit/hyperactivity disorder; SE, standard error.



### Supplementary Figure S7. Leave-one-out analysis of putative causal effects.

The x-axis shows the MR effect size of exposure on outcome. The y-axis shows the results of the analysis for each SNP. ASD, autism spectrum disorder; ADHD, attention-deficit/hyperactivity disorder; SCZ, schizophrenia.