**Supplementary Table 1. Information on different mendelian randomization analysis methods and corresponding heterogeneity tests.**

|  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **Exposure** | **Outcome** | **Method** | **N\_IV** | **b (se)** | **OR [95%CI]** | **Q** | **Q\_P** | **I2** | **Egger**  **intercept** | **P**  **pleiotropy** | **P** |
| T2D1 | AD1 | IVW | 182 | -0.020 (0.017) | 0.98 [0.95-1.01] | 4.35E+02 | 5.21E-23 | 0.584 | NA | NA | 0.241 |
| T2D1 | AD1 | WM | 182 | -0.019 (0.022) | 0.98 [0.94-1.02] | NA | NA | NA | NA | NA | 0.388 |
| T2D1 | AD1 | MR-Egger | 182 | -0.012 (0.038) | 0.99 [0.92-1.06] | 4.35E+02 | 3.47E-23 | 0.584 | -0.001 | 0.814 | 0.758 |
| T2D2 | AD2 | IVW | 158 | -0.067 (0.099) | 0.94 [0.77-1.14] | 4.24E+03 | 0 | 0.963 | NA | NA | 0.498 |
| T2D2 | AD2 | WM | 158 | 0.043 (0.033) | 1.04 [0.98-1.11] | NA | NA | NA | NA | NA | 0.191 |
| T2D2 | AD2 | MR-Egger | 158 | -0.031 (0.212) | 0.97 [0.64-1.47] | 4.24E+03 | 0 | 0.963 | -0.003 | 0.848 | 0.884 |

**Note**: T2D, type 2 diabetes; AD: Alzheimer’s disease; IVW, inverse variance-weighted; WM, weighted-median; N-IV: number of instrumental variables; OR: odds ratio; CI: confidence interval; Q-P, Cochran’s P value of heterogeneity analysis.