

Comparison of SAD variance among methods to adjust for population structure

Number of significant PC-wise
SAD components in first 20 PCs

| None | GWAS sample PCs | Target sample PCs | Both sets of PCs | Linear Mixed Model (LMM) | LMM with GWAS sample PCs |
|------|-----------------|-------------------|------------------|--------------------------|--------------------------|
| 2.9 | 1.9 | 2.2 | 1.6 | 2.5 | 2.3 |

Median across traits

Isotropic inflation

| None | GWAS sample PCs | Target sample PCs | Both sets of PCs | Linear Mixed Model (LMM) | LMM with GWAS sample PCs |
|------|-----------------|-------------------|------------------|--------------------------|--------------------------|
| 0.88 | 0.83 | 0.86 | 0.83 | 0.74 | 0.74 |

| | | | | | |
|---|---|---|---|---|---|
| 6 | 5 | 3 | 5 | 6 | 6 |
| 0 | 1 | 0 | 1 | 1 | 1 |
| 5 | 4 | 4 | 3 | 6 | 5 |
| 5 | 2 | 3 | 1 | 3 | 2 |
| 1 | 1 | 1 | 1 | 1 | 1 |
| 7 | 2 | 5 | 1 | 3 | 3 |
| 1 | 1 | 2 | 1 | 2 | 2 |
| 6 | 1 | 4 | 0 | 3 | 2 |
| 2 | 0 | 2 | 0 | 2 | 1 |
| 0 | 0 | 0 | 0 | 0 | 0 |
| 1 | 3 | 1 | 1 | 3 | 4 |
| 6 | 6 | 5 | 5 | 4 | 4 |
| 3 | 3 | 3 | 3 | 4 | 2 |
| 3 | 2 | 2 | 3 | 3 | 3 |
| 0 | 0 | 0 | 0 | 1 | 1 |
| 0 | 0 | 0 | 0 | 1 | 1 |
| 4 | 1 | 3 | 3 | 0 | 1 |

Height

Body mass index

Skin color

Household income

Waist circumference

Hair color

Birth weight

Forced vital capacity

Hand grip strength

Pulse rate

Hip circumference

Diastolic blood pressure

Overall health rating

Years of schooling

Alcohol intake frequency

Neuroticism score

Pack years of smoking

| | | | | | |
|------|------|------|------|------|------|
| 1.71 | 1.31 | 1.62 | 1.30 | 1.08 | 1.07 |
| 1.12 | 1.04 | 1.12 | 1.05 | 0.91 | 0.90 |
| 1.04 | 1.00 | 1.03 | 1.00 | 0.93 | 0.93 |
| 1.04 | 0.99 | 1.04 | 0.98 | 0.92 | 0.89 |
| 0.94 | 0.92 | 0.93 | 0.92 | 0.80 | 0.81 |
| 0.99 | 0.89 | 0.96 | 0.89 | 0.75 | 0.75 |
| 0.85 | 0.87 | 0.83 | 0.85 | 0.70 | 0.72 |
| 0.90 | 0.84 | 0.87 | 0.84 | 0.75 | 0.75 |
| 0.84 | 0.82 | 0.83 | 0.82 | 0.80 | 0.80 |
| 0.80 | 0.80 | 0.77 | 0.77 | 0.73 | 0.71 |
| 0.76 | 0.76 | 0.76 | 0.77 | 0.71 | 0.72 |
| 0.75 | 0.74 | 0.75 | 0.74 | 0.72 | 0.73 |
| 0.73 | 0.73 | 0.72 | 0.72 | 0.67 | 0.66 |
| 0.69 | 0.68 | 0.69 | 0.67 | 0.61 | 0.61 |
| 0.64 | 0.65 | 0.64 | 0.65 | 0.57 | 0.57 |
| 0.62 | 0.63 | 0.61 | 0.61 | 0.56 | 0.56 |
| 0.53 | 0.46 | 0.51 | 0.45 | 0.42 | 0.40 |