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Multivariate Meta-Analysis in Genetic Association Studies

In meta-analysis, multivariate approaches might be preferable over univariate methods for estimating parameters of interest based on correlated phenotypes. In genetic association studies, missing data are less likely while associations are generally very small to modest and could be heterogeneous, so power to detect such associations as well as their unbiased and precise estimations are the concerns. We carried out simulations to investigate performance of multivariate meta-analytic methods. Our preliminary results suggest that multivariate techniques perform better in terms of power, coverage and bias in some scenarios. We will present detailed results of our comparative analysis for different realistic scenarios.