THE 12th ANNUAL ABBOTT LABORATORIES DISTINGUISHED LECTURESHIP IN PHARMACEUTICAL APPLICATIONS

Speaker:

Professor Heping Zhang
School of Public Health (Biostatistics)
Yale University

Title:

Genetics Studies of Multivariate Traits

Place & Time:

Wednesday, April 6, 2011
Room 140 Bardeen
4pm

Abstract:

Identifying the risk factors for comorbidity is important in psychiatric research. Empirically, studies have shown that testing multiple, correlated traits simultaneously is more powerful than testing a single trait at a time in association analysis. Furthermore, for complex diseases, especially mental illnesses and behavioral disorders, the traits are often recorded in ordinal scales. In absence of covariates, nonparametric association tests have been developed for multiple (ordinal and/or quantitative) traits to study comorbidity. However, genetic studies generally contain measurements of some covariates that may confound the relationship between the risk factors of major interest (such as genes) and the outcomes. While it is relatively straightforward to include the covariates in the analysis of multiple quantitative traits, it is challenging for multiple ordinal traits. In this article, we propose a weighted test statistic based on a generalized Kendall's tau to adjust for the effects of the covariates. We conducted simulation studies to compare the type I error and power of our proposed test with an existing test. The empirical results suggest that our proposed test increases the power of testing association when adjusting for the covariates. We further demonstrate the advantage of our test by analyzing a data set on genetics of alcoholism.

This presents a series of joint work with Ching-Ti Liu, Wensheng Zhu, Yuan Jiang, and Xueqin Wang.

Cookies & Coffee @ 3:30p in Room 1210 MSC

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