NAME OF PRESENTING AUTHOR: Michael C. Neale

EMAIL ADDRESS OF PRESENTING AUTHOR: mcneale@mac.com

LOCATION OF PRESENTING AUTHOR: North America

TIME ZONE OF PRESENTING AUTHOR: USA Eastern

TYPE OF SUBMISSION: Oral paper

MEMBER STATUS: Regular

ELIGIBLE FOR THOMPSON AWARD: No
ELIGIBLE FOR ROWEWARD: No

TITLE: Effects of non-random ascertainment on variance component estimates from classical twin studies.

FULL AUTHOR LIST: Michael C. Neale[1]

AFFILIATIONS: [1]Department of Psychiatry, Virginia Institute for Psychiatric and Behavioral Genetics, Richmond, Virginia, USA

KEYWORDS: Ascertainment, simulation, twins, heritability, bias

ABSTRACT: Most twin studies involve some degree of voluntary participation. Research studies often have difficulty ascertaining participants from, e.g., low socioeconomic levels, but it is not clear what effects such non-random ascertainment would have on estimates of genetic and environmental variance components. Simulation studies were conducted to explore this potential source of bias. If twin pairs are discarded when at least one participant is below a particular threshold, non-linear effects on trait heritability estimates are seen, with an increase in apparent heritability from .8 to .9 with between 1% and 8% attrition, which falls to nominal levels at ~16% attrition. Similar but somewhat attenuated patterns are observed if individuals are retained if their score is above threshold, but their cotwin's is below (i.e., unmatched twins are included). In either case, common environment variation drops monotonically, becoming negative when selection omits ~7% or more of the sample. Implications for the study of variation among human populations include sampling methodology and the relative merits of alternative approaches to estimating heritability.

GRANT SUPPORT: R01DA-018673, U01DA051037A
