

Richard Border
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Education

- Present Ph.D. Candidate
Dissertation advised by Matthew C. Keller
Behavioral, Psychiatric, and Statistical Genetics
Department of Psychology and Neuroscience, University of Colorado Boulder
- M.S. Student
Thesis advised by Stephen Becker
Computational Science and Engineering
Department of Applied Mathematics, University of Colorado Boulder
- 2017 Master of Arts
Thesis advised by Soo Hyun Rhee
Behavioral, Psychiatric, and Statistical Genetics
Department of Psychology and Neuroscience, University of Colorado Boulder
- 2011 Bachelor of Arts
Japanese Language and Literature
Department of East Asian Studies, Wesleyan University

Research Interests

- **Statistics and statistical genetics.** Effect size estimation, power analysis, nonlinear genetic effects, method development, heritability and genetic distance metrics, numerical linear algebra, MCMC methods for Bayesian inference, computation and simulation.
- **Psychology and psychometrics.** Measurement error, mood disorders, psychotic disorders, developmental psychopathology, mortality risk, externalizing behaviors.
- **Metascience.** Publication and citation biases, falsifiability, identification of spurious findings, reproducible research.

Peer-reviewed publications

- 2018 **Border, R.**, Corley, R.C., Brown, S.A., Hewitt, J.K., Hopfer, C.J., Williams, S.K., Rhea, S., Shriver, C.L., Stallings, M.C., Wall, T.L., Woodward, K.E., Rhee, S.H.. “Independent predictors of mortality in adolescents ascertained for conduct disorder and substance use problems, their siblings, and community controls.” *Addiction*. <https://doi.org/10.1111/add.14366>
- 2017 Johnson, E.C., **Border, R.**, Melroy-Greif, W.E., de Leeuw, C., Ehringer, M.A., Keller, M.C.. “No evidence that schizophrenia candidate genes are more associated with schizophrenia than non-candidate genes.” *Biological Psychiatry*. <http://dx.doi.org/10.1016/j.biopsych.2017.06.033>
- Border, R.** and Keller, M.C.. “Fundamental Problems with Candidate Gene-by-Environment Interaction Studies.” *Journal of Child Psychology and Psychiatry*. <http://dx.doi.org/10.1111/jcpp.12669>

Manuscripts under review

Border, R., Corley, R.C., Brown, S.A., Hewitt, J.K., Hopfer, C.J., Stallings, M.C., Wall, T.L., Young, S.E., Rhee, S.H.. “Predictors of adult outcomes in clinically- and legally-referred youth with antisocial behavior.” *Invited for resubmission, PLOS ONE*.

Border, R., Smolen, A., Corley, R., Stallings, M., Brown, S., Conger, R., Derringer, J., Donnellan, B., Haberstick, B., Hewitt, J., Hopfer, C., Krauter, K., McQueen, M., Wall, T., Keller, M., Evans, L.. Imputation of Behavioral Candidate Gene Repeat Polymorphisms in 486,551 Publicly-Available UK Biobank Individuals. bioRxiv. 2018 Jun 29;358267. *Under review at the European Journal of Human Genetics*. <https://doi.org/10.1101/358267>

Border, R., Johnson, E.C., Evans, L.M., Berley, N., Sullivan, P.F., Keller, M.C. No support for candidate gene or candidate gene-by-interaction hypotheses for major depression across multiple large samples. *Under review at American Journal of Psychiatry*.

Presentations

2018 **Border, R.**, Johnson, E.C., Berley, N., Medland, S.E., Sullivan, P.F., Keller, M.C. (Paper presentation). “Examining the relevance of canonical candidate genes for major depression”. *Accepted for the 48th meeting of the Behavior Genetics Association in Boston, MA*.

Border, R., Johnson, E.C., Evans, L.M., Berley, N., Sullivan, P.F., Keller, M.C. (Poster). “Quantitative reconciliation of GWAS and candidate gene findings: measurement error, non-linearity, and artifactual results”. *Accepted for the 48th meeting of the Behavior Genetics Association in Boston, MA*.

2017 **Border, R.**, Johnson, E.C., Berley, N., Sullivan, P.F., Keller, M.C. (Poster). “Discrepancies between candidate gene and genome-wide studies of complex traits and endophenotypes.” Presented at the 25th annual meeting of the World Congress of Psychiatric Genetics, Orlando, Florida, October 13-17, 2017

Park, A. L., Tsai, K. H., Guan, K., **Border, R.**, and Chorpita, B. F. (Talk). Unintended consequences of evidence-based treatment policy reform. In *Use of Evidence in Mental Health Treatment and Clinical Decision-Making*. Symposium held at the 4th Biennial Society for Implementation Research Collaboration Conference, Seattle, WA.

2016 Johnson, E.C., Melroy-Greif, W.E., **Border, R.**, Keller, M.C., Ehringer, M.A. (Poster). “Examining 25 classic schizophrenia candidate genes in the context of GWAS data: evidence for relevance?”. Presented at the 2016 meeting of the American Society of Human Genetics in Vancouver, British Columbia.

2015 **Border, R.**, Sawaya, S., Huggett, S., Brown, S.A., Wall, T.L., and Stallings, M.C. (Poster). “Sensitivity of random forests algorithm to population stratification in GWAS data”. Presented at the 45th annual meeting of the Behavior Genetics Association in San Diego, CA.

Honors and Awards

2016–2019 National Institute of Mental Health Trainee T32 MH016880
Selected by faculty training committee thrice consecutively (maximum number of times awarded to any graduate student)
Institute for Behavioral Genetics, University of Colorado Boulder

- 2018 Behavior Genetics Association Travel Award
Behavior Genetics Association
- Departmental Travel Grant
Department of Psychology and Neuroscience, University of Colorado Boulder
- 2017 United Government of Graduate Students Individual Travel Award
University of Colorado Boulder Graduate School
- 2015–2019 Predoctoral Fellowship
Institute for Behavioral Genetics, University of Colorado Boulder

Peer Review

I have reviewed articles for the following journals:

- *American Journal of Medical Genetics Part B: Neuropsychiatric Genetics*
- *Genes, Brain and Behavior*
- *Molecular Psychiatry*
- *Psychoneuroendocrinology*

Teaching

- 2018 Mathematical Statistics (Combined Undergraduate and Graduate Sections)
Course Assistant, Department of Applied Mathematics.
- Statistical Methods (Combined Undergraduate and Graduate Sections)
Course Assistant, Department of Applied Mathematics.
- 2016 Statistical Programming with R (Graduate)
Teaching Assistant, Department of Psychology and Neuroscience.
- Statistics II (Graduate)
Teaching Assistant, Department of Psychology and Neuroscience.
- 2015 Introduction to Statistics (Undergraduate)
Teaching Assistant, Department of Psychology and Neuroscience.
- Statistical Programming with R (Graduate)
Teaching Assistant, Department of Psychology and Neuroscience.