Christopher B. Boyer

CONTACT INFORMATION

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RESEARCH INTERESTS

Causal inference, randomized-controlled trials, statistics, machine learning, epidemiology, global health, econometrics, networks, Bayesian methods

EDUCATION

Harvard University, Cambridge, Massachusetts USA

Ph.D., Epidemiology — 2022 (expected)

Concentration: Causal Inference
Thesis Committee: Goodarz Danaei (*Chair*), James Robins, Andrew Beam

M.S., Biostatistics — 2022 (expected)

Columbia University, New York, New York USA

M.P.H., Epidemiology — 2015

Wright State University, Dayton, Ohio USA

B.S., Mechanical Engineering — 2010

PUBLICATIONS

Boyer, C., Paluck, E. L., Annan, J., Nevatia, T., Cooper, J., Namubiru, J, Heise, L., & Lehrer, R. (2022) "Religious leaders can motivate men to cede power and reduce intimate partner violence: experimental evidence from Uganda". *PNAS*. 119(31), e2200262119. DOI: 10.1073/pnas.2200262119

Boyer, C, Rumpler, E, Kissler, S, & Lipsitch, M. (2022) "Infectious disease dynamics and restrictions on social gathering size". *Epidemics*, 40, 100620. DOI: 10.1016/j.epidem.2022.100620

NCD Risk Factor Collaboration (NCD-RisC). (2021) "Worldwide trends in hypertension prevalence and progress in treatment and control from 1990 to 2019: a pooled analysis of 1201 population-representative studies with 104 million participants". *The Lancet*. 398(10304), 957–980. DOI: 10.1016/S0140-6736(21)01330-1

WORKING PAPERS

Boyer, C., Chatterji, S., Cooper, J., Heise, L. (2022). "Outcome coding choice in randomized trials of programs to reduce violence". *ArXiv:2204.12385 [Stat]*. http://arxiv.org/abs/2204.12385

NCD Risk Factor Collaboration (NCD-RisC). (2021) "Long-term and recent trends in serum cholesterol treatment and control in 14 high-income countries: an analysis of 125 nationally representative surveys".

Boyer, C., Bates-Jefferys, E., Fink, G. & Annan, J. (2021) "Texting with men to reduce violence: a cluster-randomized trial of the Modern Man Challenge intervention in Monrovia, Liberia".

Boyer, C., Beam, A., Robins, J, & Danaei, G. (2021) "Factual and counterfactual risk prediction using the parametric g-formula". *Dissertation paper*.

Boyer, C., Beam, A., Robins, J, & Danaei, G. (2021) "Target trials for prediction: emulating a trial to estimate the treatment-naive risk".. *Dissertation paper*.

Boyer, C., Beam, A., Robins, J, & Danaei, G. (2021) "Validating counterfactual predictions". *Dissertation paper.*

Conference Presentations

Boyer, C. & Namubiru, J. (2022). "Religious Leaders Can Motivate Men To Cede Power And Reduce Violence: Main Findings from Becoming One". *SVRI Forum 2022*

Namubiru, J. & **Boyer, C.**. (2022). "Reduced IPV driven largely by highest quality, most progressive facilitators". *SVRI Forum 2022*

Boyer, C. & Danaei, G. (2021). "New Approaches to Factual and Counterfactual Risk Prediction for Cardiovascular Disease Using the Parametric G-formula". *Circulation*, 144(Suppl_1), A14191-A14191.

Boyer, C., Jackson, E., Bawah, A., Schmitt, M., Awoonor-Williams, J., & Phillips, J. (2015). "Estimating indices of health system readiness: an example from rural northern Ghana". *The Lancet Global Health*, 3, S14.

Honors and Awards

Department of Epidemiology Excellence in Teaching award	2022
Bok Center Certificate of Distinction in Teaching (×3)	2019, 2020, 2021
Summa Cum Laude, Columbia University	2015
Magna Cum Laude, Wright State University	2010
Tau Beta Pi, Wright State University	2010
National Merit Scholarship Finalist	2006
Salutatorian, Miamisburg High School	2006

Extramural Grants

USAID Development Innovation Ventures (APS9-7414). $200,000. Role: *co-PI*	2021
SVRI/World Bank Development Marketplace Award. $50,000. Role: *co-PI*	2020
NIH T32 Training Grant (T32 HL 098048). Role: *Trainee*	2019
Wellspring Philanthropic Fund. $450,000. Role: *co-PI*	2017

Research Projects

Annan, J., **Boyer, C.**, Cooper, J., Heise, L., & Paluck, E.L. (2019) "A Pair-Matched Randomized Evaluation of Faith-Based Couples Counseling in Uganda." AEA RCT Registry. March 11. https://doi.org/10.1257/rct.3994-4.1

Annan, J., Fink, G., & Paluck, E.L. (2019) "Modern Man Challenge Intimate Partner Violence Study." AEA RCT Registry. June 10. https://doi.org/10.1257/rct.4245-1.0

Boyer, C. & Field, E. (2022) "Hablemos entre Patas: A Randomized-Controlled Trial of a WhatsApp Intervention to Reduce Intimate Partner Violence" AEA RCT Registry. October 14. https://www.socialscienceregistry.org/trials/10043

Teaching Experience

EPI207 - Advanced Epidemiologic Methods

Lead Teaching Fellow **2020, 2021**

Required course for epidemiology PhD students. Causal inference for time-varying exposures: g-formula, inverse-probability weighting, marginal structural models, static and dynamic treatment regimes. Responsible for leading 90 min lab section and grading homeworks and tests.
Instructor: Dr. James Robins

PHS2000 - Quantitative reseach methods

Teaching Fellow **2019, 2020, 2021**

Year-long required methods course for first-year PhD students. Regression models, sampling, longi-

tudinal and multilevel analysis, time-varying confounding, mediation and interaction, econometric methods, missing data. Responsible for leading 90 min lab section, developing homework assignments and tests, and drafting course materials.
Instructors: Dr. Tyler Vanderweele, Dr. Jarvis Chen, Dr. Michael Hughes

Professional Experience

Innovations for Poverty Action, New York, New York USA

Technical Lead **2017 - 2018**
Managed a team that provided support to 70+ active randomized trials advising on research and questionnaire design, programming (Stata, R, and Python), statistics/econometrics, and data management. Designed and conducted randomized trials with assistance of PI network. Responsible for improving quality and efficiency of data collected at IPA through innovative technical solutions and research methods. Lead global technical training.

Senior Research and Data Analyst **2016 - 2017**
Provided technical guidance to randomized evaluations testing the impact of the Partnership Schools Program in Liberia, the impact of the IRC's Girl Empower Program in Liberia. Authored Stata packages used by IPA, J-PAL, and the World Bank to automate daily checks of survey data quality.

Research and Data Analyst **2015 - 2016**
Lead data manager and analyst on a randomized evaluation testing the impact of interpersonal communication networks on contraceptive use in Zambia.

Columbia University, New York, New York USA

Research Associate **2013 - 2015**
Provided research support on data management, analysis, and preparation of manuscripts on studies in Ghana and Tanzania for Dr. James Phillips and the program on Advancing Research on Comprehensive Health Systems (ARCHeS).

Peace Corps, Montepuez, Cabo Delgado, Mozambique

Secondary Science Teacher **2010 - 2012**
Instructed more than 700 secondary school students in Physics and English. Lessons delivered in Portuguese. Established first science laboratory in the district. Collaborated with the Ministry of Education to organize regional and provincial science fair competition. Managed extracurricular journalism club.

Consulting Experience

StellarEmploy, New York, New York USA

Data Scientist **2017 - 2018**
Built and refined prediction models of the probability of employee turnover using psychometric data from applicants for private sector clients in high-turnover industries to help them make smarter hiring decisions.

World Bank, Washington, DC USA

R/Python Programmer **2016**
Built data pipeline and visualization using Python to automate the creation of easy-to-read municipal performance scorecards for low-literacy populations as part of a randomized evaluation on voter engagement and political preferences in Burkina Faso.

Published Software

Boyer, C., Danaei, G, Hajifathalian, K, Ueda, P, & Carrillo Larco, R. M. (2021) `globorisk`, R package for Globorisk Global CVD Risk Calculator.

Boyer, C., Baako, I.A., & Sandino, R.S. (2018) `ipacheck`, Stata package for running high-frequency

checks of survey data.

Boyer, C. & White, M. (2016) `bcstats`, Stata package for comparing survey and back check data.

Programming

Statistics:	R, Stata, Python, Stan, Julia (beginner)
Web:	HTML, JavaScript, CSS, D3.js
GIS:	ArcGIS, QGIS, ggmap, ggplot
Markup:	Markdown, LaTeX
Survey:	SurveyCTO, Qualtrics
Other:	C/C++, SQL, Java