ELLYN BUTLER

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EDUCATION

Northwestern University, Evanston, IL   September 2021 - present
Doctor of Philosophy in Clinical Psychology — Master of Science in Statistics

- Principal Investigators: Robin Nusslock, Ph.D. & Caterina Gratton, Ph.D.
- Research objective ⇒ Identify neuroimmune mechanisms connecting violence exposure with psychopathology across development, and determine important moderators of this association, including modifiable characteristics of the social environment.

Oberlin College & Conservatory, Oberlin, OH GPA: 3.96   August 2013 - May 2018
Bachelor of Arts in Psychology — Bachelor of Music in Flute Performance
Concentration in Statistical Modeling — Minor in Law & Society

WORK EXPERIENCE

University of Pennsylvania, Philadelphia, PA   June 2018 - August 2021
Data Analyst — Brain Behavior Laboratory

- Principal Investigator: Ruben Gur, Ph.D.
- Mission ⇒ The lab aims to characterize clinical, cognitive and neurobiological trajectories of youth on the psychosis spectrum, and to uncover the biological bases of behavior more broadly in part through improving the measurement of pertinent domains.
- Statistics, Visualization and Communication ⇒ Translate research questions into testable hypotheses, utilize machine learning and Bayesian methods for prediction, communicate results to investigators using informative graphics, and write methods and results sections for manuscripts.
- Neuroimaging ⇒ Pre-process T1-weighted, diffusion, and functional images using a variety of software packages, and build a series of Docker images to process longitudinal structural data.
- Psychometrics ⇒ Utilize factor analysis and item response theory to explore psychometric properties and score cognitive and clinical assessments, and assess the validity of various administration strategies for the Penn Computerized Neurocognitive Battery.
- Management ⇒ Organize weekly meetings to discuss data and teach junior staff about data analysis.
- Manuscript Preparation ⇒ Write manuscripts on the social, biological and psychopathological sequelae of childhood physical and sexual abuse, and measurement and statistics.

Momentum@Work, Austin, TX   December 2019 - January 2020
Consulting Statistician

- Collaborator: Allison Brenner, M.A.
- Responsibilities: Performed psychometric analyses and wrote summary of results to help determine efficacy of evaluation for potential Foreign Service members.

TECHNICAL SKILLS

Programming Languages	R, Python, Bash, LaTeX
Version Control	GitHub, Docker, Singularity, Flywheel
Neuroimaging Software	fMRIPrep, XCPEngine, NiLearn, ANTs, FSL, AFNI, Freesurfer

MANUSCRIPTS: PEER REVIEWED

1. **Butler, E.R.**, Chen, A., Ramadan, R., Le, T.T., Ruparel, K., Moore, T.M., Satterthwaite, T.D., Zhang, F., Shou, H., Gur, R.C., Nichols, T.E.*, & Shinohara, R.T.* (2021). Pitfalls in brain age analyses. *Human brain mapping. 42*(13), 4092-4101. https://bit.ly/2RdvVBd

2. Tapera, T.M., Cieslak, M., Bertolero, M., Adebimpe, A., Aguirre, G.K., **Butler, E.R.**, Cook, P.A., Davila, D., Elliott, M.A., Linguiti, S., Murtha, K., Tackett, W., Detre, J.A., & Satterthwaite, T. (accepted). FlywheelTools: data curation and manipulation on the Flywheel platform. *Frontiers neuroinformatics.* https://www.biorxiv.org/content/10.1101/2021.03.12.434998v3

3. Moore, T.M.*, Calkins, M.E.*, Rosen, A.F.G., **Butler, E.R.**, Ruparel, K., Fusar-Poli, P., Koutsouleris, N., McGuire, P., Cannon, T.D., Gur, R.C., & Gur, R.E. (2021). Development of a probability calculator for psychosis risk in children, adolescents, and young adults. *Psychological medicine*, 1-9. http://bit.ly/38PHepB

4. Moore, T.M., **Butler, E.R.**, Scott, J.C., Port, A.M., Ruparel, K., Njokweni, L.J., Gur, R.E., & Gur, R.C. (2020). When CAT is not an option: Complementary methods of test abbreviation for neurocognitive batteries. *Cognitive neuropsychiatry, 26*(1), 35-54. https://bit.ly/3nAtVOZ

5. Gur, R.C., **Butler, E.R.**, Moore, T.M., Rosen, A.F.G., Ruparel, K., Satterthwaite, T.D., Roalf, D.R., Gennatas, E.D., Bilker, W.B., Shinohara R.T., Port, M., Elliott, M.A., Verma, R., Davatzikos, C., Wolf, D.H., Detre, J.A., & Gur, R.E. (2020). Structural and functional brain parameters related to cognitive performance across development: Replication and extension of the parieto-frontal integration theory in a single sample. *Cerebral cortex*, 31(3), 1444-1463. https://bit.ly/3aEgN7Z

6. Morean, M.E. & **Butler, E.R.** (2019). The Medical Cannabis Expectancy Questionnaire: Adult medical marijuana users' expectancies associated with combustible, vaporized, and edible cannabis use for medical purposes. *Cannabis*, 2, 1-18. https://bit.ly/2NTGLYX

7. Morean, M.E., L'Insalata, A., **Butler, E.R.**, McKee, A., & Krishnan-Sarin, S. (2018). Age at drinking onset, age at first intoxication, and delay to first intoxication: Assessing the concurrent validity of measures of drinking initiation with alcohol use and related problems. *Addictive behaviors, 79*, 195-200. https://bit.ly/3OwIhoE

8. Morean, M. E., **Butler, E. R.**, Bold, K. W., Kong, G., Camenga, D. R., Cavallo, D. A., Simon, P., & Krishnan-Sarin, S. (2018). Preferring more e-cigarette flavors is associated with e-cigarette use frequency among adolescents but not adults. *PloS one, 13*(1), e0189015. https://bit.ly/2NyJBST

MANUSCRIPTS: OTHER

1. **Butler, E.R.**, Moore, T.M., Calkins, M.E., Ruparel, K., Gur, R.C., & Gur, R.E. (preprint). Do we understand our daughters' depression and anxiety? A bifactor modeling approach. https://psyarxiv.com/57hrv/

2. Scott, J.C., Moore, T.M., Roalf, D.R., Satterthwaite, T.D., Wolf, D.H., Port, A.M., **Butler, E.R.**, Ruparel, K., Nievergelt, C.M., Risbrough, V.B., Baker, D.G., Gur, R.E., & Gur, R.C. (under review). Development and application of novel, data-driven performance validity metrics for computerized neurocognitive batteries. https://psyarxiv.com/64ucw/

3. Adebimpe, A., Bertolero, M., Douli, S., Cieslak, M., Murtha, K., Baller, E., **Butler, E.R.**, Cook, P., Colcombe, S., Covitz, S., Davatzikos, C., Davila, D., Flounders, M., Elliott, M.A., Franco, A., Gur, R.E., Gur, R.C., Jaber, B., McMillian, C., Milham, M., Mutsaerts, H., Oathes, D.J., Olm, D., Phillips, J., Tackett, W., Roalf, D.R., Tapera, T.M., Tisdall, M.D., Esteban, O., Poldrack, R., Detre, J.A., & Satterthwaite, T.D. (under review). ASLPrep: A generalizable workflow for processing of arterial spin labeled MRI and quantification of brain perfusion.

CONFERENCE POSTER PRESENTATIONS

1. Adebimpe, A., Bertolero, M., Douli, S., Cieslak, M., Murtha, K., Baller, E., **Butler, E.R.**, Cook, P., Colcombe, S., Covitz, S., Davatzikos, C., Davila, D., Flounders, M., Elliott, M.A., Franco, A., Gur, R.E., Gur, R.C., Jaber, B., McMillian, C., Milham, M., Mutsaerts, H., Oathes, D.J., Olm, D., Phillips, J., Tackett, W., Roalf, D.R., Tapera, T.M., Tisdall, M.D., Esteban, O., Poldrack, R., Detre, J.A., & Satterthwaite, T.D. (June 2021). ASLPrep: A generalizable workflow for processing of arterial spin labeled MRI and quantification of brain perfusion. To be presented at the annual meeting of the Organization for Human Brain Mapping.

2. Calkins, M.E., **Butler, E.R.**, Moore, T.M., Ruparel, K., Wolf, D.H., Satterthwaite, T.D., Gur, R.C., & Gur, R.E. (April 2021). Longitudinal trajectories of psychosis spectrum symptoms in community youth: findings from the Philadelphia Neurodevelopmental Cohort (PNC). Presented at the annual meeting of the Society of Biological Psychiatry.

3. Scott, J.C., Moore, T.M., Roalf, D.R., Satterthwaite, T.D., Wolf, D.H., Port, A.M., **Butler, E.R.**, Ruparel, K., Nievergelt, C.M., Risbrough, V.B., Baker, D.G., Gur, R.E., & Gur, R.C. (February 2021). Development and application of novel, data-driven performance validity metrics for computerized neurocognitive batteries. Talk presented at the International Neuropsychological Society Annual Conference, San Diego, CA (virtual).

4. **Butler, E.R.**, Chen, A., Ramadan, R., Ruparel, K., Moore, T.M., Zhang, F., Shou, H., Gur, R.C., Nichols, T.E.*, & Shinohara, R.T.* (June 2020). Statistical pitfalls in brain age analyses. Poster presented at the annual meeting of the Organization for Human Brain Mapping.

5. Morean, M.E., **Butler, E.R.**, Bold, K., Kong, G., Camenga, D., Cavallo, D., Simon, P. & Krishnan-Sarin, S. (March 2017). Preference for more e-cigarette flavors is associated with e-cigarette use frequency among youths but not adults. Poster presented at the annual meeting of the Society for Research on Nicotine and Tobacco.

6. Morean, M.E., **Butler, E.R.**, Bold, K., Kong, G., Camenga, D., Cavallo, D., Simon, P. & Krishnan-Sarin, S. (November 2016). Preference for more e-cigarette flavors is associated with e-cigarette use frequency among youths but not adults. Poster presented at the annual Tobacco Regulatory Science Conference.

* Denotes equal contribution

PROFESSIONAL SERVICE

1. Ad hoc reviewer for *Neurobiology of Aging*   August 2021

2. Ad hoc reviewer for *Biological Psychiatry*   February 2021

3. Ad hoc reviewer for *The American Journal of Psychiatry*   January 2021

4. Ad hoc reviewer for *Substance Use and Misuse*   November 2017

HONORS AND AWARDS

1. Honorable Mention from the NSF Graduate Research Fellowship Program   March 2021

2. Nominated member of Phi Beta Kappa   April 2018

3. Nominated member of Sigma Xi, The Scientific Research Society   March 2018

4. Nominated member of PI Kappa Lambda, The National Music Honor Society   February 2018

MENTORSHIP

Bukola Ajanaku   September 2020 - June 2021
University of Pennsylvania undergraduate and incoming MD/PhD student at Mount Sinai

RELEVANT UNDERGRADUATE COURSEWORK

Mathematics, Statistics & Computer Science
Multivariable Calculus, Discrete Mathematics, Linear Algebra, Statistical Modeling, Probability, Mathematical Statistics, Introduction to Bayesian Data Analysis, Introduction to Computer Science

Neuroscience
Introduction to Neuroscience, Cognitive Neuroscience, Advanced Methods in Human Psychophysiology

Psychology
Clinical and Counseling, Child Psychopathology and Treatment, Abnormal, Developmental, Social, Cultural, Seminar in Social Conflict, Advanced Methods in Psychometrics

UNDERGRADUATE RESEARCH EXPERIENCE

Temple University, Philadephia, PA   June 2017 - August 2017
Research Assistant — Ellman Lab

- Principal Investigator: Lauren Ellman, Ph.D.
- Responsibilities: Worked on a project to document associations between childhood trauma, social support and psychosis symptoms.

Children's Hospital of Philadelphia, Philadelphia, PA   June 2016 - August 2016
REU Intern — Center for Injury Research and Prevention

- Principal Investigator: Joel Fein, M.D., M.P.H.
- Responsibilities: Conducted research with Dr. Nancy Kassam-Adams on parent-child PTSD symptom agreement and severity. Shadowed Violence Intervention Program case managers and reviewed surveillance data to identify incidents of assaults on school property. Wrote a blog post on the mental health needs of children with incarcerated parents: `https://bit.ly/3bkgU5V`.

Oberlin College, Oberlin, OH   October 2015 - May 2018
Research Assistant — Substance Use in Adolescence

- Principal Investigator: Meghan Morean, Ph.D.
- Responsibilities: Designed surveys for experience with and expectations of substance use; performed psychometric and statistical analyses for publication; and assisted in manuscript preparation.

University of Denver, Denver, CO   May 2015 - July 2015
Research Assistant — The Relationship Lab

- Principal Investigator: Wyndol Furman, Ph.D.
- Responsibilities: Conducted background research, ran analyses, and edited articles for publication on adolescent romantic relationships.

University of Chicago, Chicago, IL   May 2014 - August 2014
Research Assistant — Child Neurosuite

- Principal Investigator: Jean Decety, Ph.D.
- Responsibilities: Recruited and applied electroencephalographic caps to infants, and maintained their focus during tasks evaluating pro-social behavior.

Oberlin College, Oberlin, OH   January 2014 - December 2014
Research Assistant — Continuity of Close Relationships Project

- Principal Investigator: Nancy Darling, Ph.D.
- Responsibilities: Micro- and macro-coded videos of adolescent and adult couples engaging in conflict resolution and social support tasks. This included marking and coding specific utterances, and evaluating couples on dimensions such as anxiety, affection and cohesion.

UNDERGRADUATE TEACHING EXPERIENCE

Oberlin College, Oberlin, OH   August 2017 - December 2017
Grader — Introduction to Biostatistics, Mathematics Department

- Supervisor: Jeffrey Witmer, Ph.D.
- Responsibilities: Graded and provided feedback on biostatistics homework.

Oberlin College, Oberlin, OH   August 2017 - December 2017
Drop-In Tutor — Mathematics Department

- Responsibilities: Assisted students with comprehension of calculus and statistics.

Oberlin College, Oberlin, OH   February 2016 - May 2016
Teaching Assistant — Research Methods II, Psychology Department

- Supervisor: Travis Wilson, Ph.D.
- Responsibilities: Held office hours, graded daily quizzes, and assisted students during lab.

Oberlin College, Oberlin, OH   October 2015 - December 2017
Tutor — Student Academic Services

- Courses: Introduction to Neuroscience, Statistical Modeling, Calculus I-III, Research Methods I-II, Aural Skills 1-IV, Music Theory I-IV

CLINICALLY RELEVANT EXPERIENCE

Oberlin College, Oberlin, OH   August 2017 - December 2017
Peer Advising Leader — Office of the Dean of Students

- Supervisor: Dana Hamdan, M.Ed., Executive Director, Career Development Center
- Responsibilities: Advised freshmen on course selection, study habits, and career opportunities.

Oberlin College, Oberlin, OH   November 2014 - May 2018
Peer Listener and Board Member — Peer Support Center

- Supervisor: Matthew Hayden, M.A., Associate Dean of Students
- Responsibilities: Listened to and supported peers during periods of stress, and troubleshot logistics of launching a peer-to-peer support center.

COMMUNITY SERVICE

Collective Success Network, Philadelphia, PA   October 2020 - December 2020
Mentor

- Supervisor: Alice Ginsberg
- Responsibilities: Help a low-income, first-generation college student achieve their academic and career aspirations through providing advice and resources on preparing for graduate school.

Mighty Writers, Philadelphia, PA   October 2018 - June 2021
Mentor

- Supervisor: Christina Rissell
- Responsibilities: Help a student from 7th through 9th grade develop writing and studying skills, and thrive through the transition to high school by helping with applications, time management, and new social situations.

Oberlin Community Services, Oberlin, OH   February 2014 - May 2018
Tutor — America Counts

- Responsibilities: Tutored a student from 4th through 8th grade in mathematics, and provided mentorship for the student through difficult peer and familial circumstances.