

ELIZABETH C. STADE, PH.D.

Email: betsystade@stanford.edu *OSF:* <https://osf.io/h3d4g/>
Web: <https://betsystade.github.io/> *ORCID:* 0000-0001-6409-848X

EMPLOYMENT AND EDUCATION

Stanford University **2023 – current**

Postdoctoral Fellowship, Institute for Human-Centered Artificial Intelligence and Departments of Psychiatry and Behavioral Sciences and Psychology

University of Pennsylvania **2017 – 2023**

Ph.D., Clinical Psychology (APA- and PCSAS-accredited)

Dissertation: *Novel Methods of Assessing and Classifying Depression, Anxiety, and Perseverative Thought*

University of Pennsylvania **2017 – 2018**

M.A., Psychology

Thesis: *A Novel Measure of Real-Time Perseverative Thought*

Barnard College, Columbia University **2011 – 2015**

B.A., Psychology & Religion (*summa cum laude*)

GRANTS AND FELLOWSHIPS

Stanford University, Center for Artificial Intelligence in Medicine & **2023 – current**
Imaging and Institute for Human-Centered Artificial Intelligence Grant **(\$200,000)**

National Science Foundation, Graduate Research Fellowship Program **(\$138,000)** **2018 – 2021**

University of Pennsylvania, Benjamin Franklin Fellowship **(\$130,000)** **2017, 2021 – 22**

University of Pennsylvania, Graduate Research & Travel Awards (total **\$3,717**) **2018 – 2022**

HONORS AND AWARDS

Society for Research in Psychopathology **2022**

Smadar Levin Award preliminary finalist (*for the most outstanding submission from a graduate student*)

Barnard College, Columbia University **2015**

Phi Beta Kappa, Mary E. Allison Prize (*for academic excellence*), Psychology Faculty Recognition Prize

RESEARCH INTERESTS

- Applications of artificial intelligence, large language models, and natural language processing for the assessment and treatment of psychopathology
- Diagnosis and classification of depression, anxiety, and PTSD; validity of transdiagnostic or dimensional approaches
- Worry, rumination, and their umbrella construct perseverative thinking
- Mechanisms of treatment response; therapist fidelity in the cognitive behavioral therapies

PUBLICATIONS

- Stade, E. C.,** DeRubeis, R. J., Ungar, L., & Ruscio, A. M. (2023). A transdiagnostic, dimensional classification of anxiety shows improved parsimony and predictive noninferiority to *DSM*. *Journal of Psychopathology and Clinical Science*. 132(8), 937-948.
<https://doi.org/10.1037/abn0000863>
- Stade, E. C.,** Ungar, L., Eichstaedt, J. C., Sherman, G., Ruscio, A. M. (2023). Depression and anxiety have distinct and overlapping language patterns: Results from a clinical interview. *Journal of Psychopathology and Clinical Science*. 132(8), 972–983.
<https://doi.org/10.1037/abn0000850>
- Stade, E. C.,** Ungar, L., Havaladar, S., Ruscio, A. M. (2023). Perseverative thinking is associated with features of spoken language. *Behaviour Research and Therapy*. 165.
<https://doi.org/10.1016/j.brat.2023.104307>
- Stade, E. C.,** & Ruscio, A. M. (2022). A meta-analysis of the relationship between worry and rumination. *Clinical Psychological Science*. 11(3), 552-573.
<https://doi.org/10.1177/21677026221131309>
- Stade, E. C.,** Cohen, R., Loftus, P., & Ruscio, A. M. (2022). A novel measure of real-time perseverative thought. *Clinical Psychological Science*. 10(3), 534–552.
<https://doi.org/10.1177/21677026211038017>
- Costi, S., Soleimani, L., Glasgow, A., Brallier, J., Spivack, J., Schwartz, J., Levitch C. F., Richards, S., Hoch, M., **Stade, E. C.,** Welch, A., Collins, K. A., Feder, A., Iosifescu, D. V., Charney, D. S., & Murrough, J. W. (2019). Lithium continuation therapy following ketamine in patients with treatment resistant unipolar depression: a randomized controlled trial. *Neuropsychopharmacology*, 44, 1812–1819. <https://doi.org/10.1038/s41386-019-0365-0>
- Murrough, J. W., **Stade, E. C.,** Sayed, S., Ahle, G., Kiraly, D. D., Welch, A., Collins, K. A., Soleimani, L., Iosifescu, D. V., & Charney, D. S. (2017). Dextromethorphan/quinidine pharmacotherapy in patients with treatment resistant depression: A proof of concept open

label clinical trial. *Journal of Affective Disorders*, 218, 277-283.
<https://doi.org/10.1016/j.jad.2017.04.072>

Stade, E. C., & Iosifescu, D.V. (2016). Using EEG for treatment guidance in major depressive disorder. *Biological Psychiatry: Cognitive Neuroscience and Neuroimaging*, 1(5), 411-422.
<https://doi.org/10.1016/j.bpsc.2016.06.002>

Under Review

Stade, E. C., Wiltsey Stirman, S., Ungar, L., Schwartz, H. A., Sedoc, J., Willer, R., Yaden, D. B., DeRubeis, R. J., Eichstaedt, J. C. (under review). Large language models could change the future of behavioral healthcare: A proposal for responsible development and evaluation. Preprint: <https://psyarxiv.com/cuzvr>

Rai, S., **Stade, E. C.,** Giorgi, S., Francisco, A., Ungar, L., Curtis, B., (under review). Key language markers of depression depend on race.

In Preparation

Stade, E. C., Subrahmanya, S., Schwartz, H. A., Ungar, L., Guntuku, S. C., Eichstaedt, J. C. (in prep.). Unpacking the language of depression.

Stade, E. C., Giorgi, S., Curtis, B., Ungar, L. (in prep.). The language of social desirability: Further evidence for a relationship with self control.

PRESENTATIONS

Friedman, J., **Stade, E. C.,** & Ruscio, A. M. (2022, November). *Worry and rumination differ in their prediction of generalized anxiety disorder and major depressive disorder*. Poster presented at the Annual Meeting of the Association for Behavioral and Cognitive Therapies, New York, NY.

Stade, E. C., Ungar, L., & Ruscio, A. M. (2022, September). *A language-based model of perseverative thinking*. Poster and flash talk presented at the Society for Research on Psychopathology Annual Meeting, Philadelphia, PA.

Stephenson, A., **Stade, E. C.,** & Ruscio, A. M. (2021, November). *Measuring behavioral reactions to social stress in generalized anxiety disorder and major depressive disorder*. Poster presented at the Annual Meeting of the Association for Behavioral and Cognitive Therapies, New Orleans, LA.

Stephenson, A., **Stade, E. C.,** & Ruscio, A. M. (2020, November). *Relationship of reward responsiveness to severity and course features of major depressive disorder*. Poster presented at the Annual Meeting of the Association for Behavioral and Cognitive Therapies, Philadelphia, PA.

Stade, E. C., Loftus, P., Cohen, R., & Ruscio, A. M. (2019, March). *A novel measure of real-time perseverative thought*. Poster presented at the Annual Meeting of the Anxiety and Depression Association of America, Chicago, IL.

Murrough, J. W., **Stade, E. C.,** Sayed, S., Ahle, G., Kiraly, D. D., Welch, A., Collins, K. A., Soleimani, L., Iosifescu, D. V., & Charney, D. S. (2016, December). *Dextromethorphan/quinidine combination as a novel pharmacotherapeutic approach in patients with treatment resistant depression*. Poster presentation at American College of Neuropsychopharmacology, Hollywood, FL.

Stade, E. C., Aull, A., Ruyter-Harcourt, I., Rosenberg, M., Garduño, O., Banning, T., Liu, S., Shapiro, L., Sehayik, T., Levenson, L., Hong, K. E., & Heuer, L. (2014, March). *Deservingness beliefs as a moderator of procedural fairness in police-civilian encounters*. Poster presentation at the annual meeting of the Eastern Psychological Association, Boston, MA.

Jackson, M., Ruyter-Harcourt, I., Stiller, M., Kassan, M., Davids, M., **Stade, E. C.,** & Heuer, L. (2013, March). *Deservingness and status as moderators of procedural fairness*. Poster presentation at the annual meeting of the Eastern Psychological Association, New York, NY.

RESEARCH EXPERIENCE

Stanford University, Department of Psychiatry & Behavioral Sciences Feb. 2023 – Aug. 2023 National Center for PTSD, Dissemination and Training Division

Research Intern, Fidelity Adaptation Sustainability & Training Lab (PI: Shannon Wiltsey Stirman, PhD)

- Developing an AI and machine learning measure of therapist fidelity to evidence-based psychotherapy; analyzing data from an NIMH-funded study of a trauma-focused asynchronous messaging therapy (cognitive processing therapy for PTSD); developing and studying applications for AI and large language models to psychotherapy.

University of Pennsylvania, Department of Psychology Aug. 2017 – May 2022 Graduate Research Assistant, Boundaries of Anxiety and Depression Lab (PI: Ayelet Ruscio, PhD)

- Performed advanced data analysis using R, python, and SQL (e.g., machine learning, Natural Language Processing [NLP], Hierarchical Linear Modeling), led meta-analytic investigation of the worry-rumination relationship (719 included effect sizes); developed line of NLP-focused research and led large team of research assistants in transcribing 600+ clinical interview audio recordings

Icahn School of Medicine at Mount Sinai, Department of Psychiatry Jun. 2015 – Jun. 2017 Clinical Research Coordinator, Depression and Anxiety Center (PIs: James Murrough, MD, PhD; Dan Iosifescu PhD)

- Administered neuroimaging (EEG) and behavioral tasks (Probabilistic Reward Task; Effort Expenditure for Rewards Task); initiated and led overhaul of lab's data capture system; designed REDCap databases for complex, multi-arm studies investigating the efficacy and safety of novel treatments for mood and anxiety disorders; performed clinical assessments

before, during, and after administrations of investigational pharmacotherapies (including ketamine and monoclonal antibodies)

Icahn School of Medicine at Mount Sinai, Department of Psychiatry **2013 - 2015**

Research Assistant, Depression and Anxiety Center (PIs: James Murrough, MD, PhD; Dan Iosifescu PhD)

- Administered semi-structured phone screens as part of recruitment efforts for clinical trials and basic research studies on mood and anxiety disorders; administered neurocognitive assessments, helped manage and develop study databases

Barnard College, Columbia University, Department of Psychology **2012 - 2015**

Research Assistant, Procedural Justice Lab (PI: Larry Heuer, PhD)

- Supervised lab of ten undergraduates to standardize and implement experimental study on deservingness and interrogation methods; developed and managed data capture process

TEACHING

University of Pennsylvania

Abnormal Psychology (TA) **2019**

Introduction to Psychology (TA/Recitation Leader) **2018**

Barnard College

Statistics (Undergraduate TA) **2015**

PROFESSIONAL SERVICE

Professional Affiliations

Anxiety and Depression Association of America

Association for Behavioral and Cognitive Therapies

Ad Hoc Reviewer

Emotion

Journal of Consulting and Clinical Psychology

Journal of Experimental Psychopathology

Journal of Psychopathology and Clinical Science

University of Pennsylvania

Student Representative to the Clinical Faculty **2021 – 2022**

Mentor, Penn Undergraduate Research Mentoring Program **2020 – 2021**

Clinical Program Student Seminar Leader **2019 – 2020**

Mentor, Graduate School Mentoring Initiative **2019 – 2020**

Mentor, Big Sibling Program **2019 – 2020**

CLINICAL EXPERIENCE

Veterans Affairs Palo Alto Health Care System

Psychology Internship (APA-accredited), *Psychology Service* **2022 – 2023**
Clinical Rotations: Women's Health Psychology; Addiction Consultation & Treatment; Inpatient Psychiatry
Research Rotation: National Center for PTSD (PI: Shannon Wiltsey Stirman)
Interventions: Cognitive Processing Therapy (CPT); Prolonged Exposure Therapy (PE); Acceptance and Commitment Therapy (ACT); Cognitive Behavioral Therapy (CBT) for Chronic Pain

University of Pennsylvania

Psychotherapy Extern, *Steven A. Cohen Military Family Clinic* **2021 – 2022**
Interventions: CPT; ACT

Study Diagnostician/Clinical Interviewer, *Boundaries of Anxiety and Depression Lab* **2017 – 2022**
Assessments: Anxiety and Related Disorders Interview Schedule for *DSM-5* (ADIS-5L); Hamilton Depression Rating Scale (HAM-D), Hamilton Anxiety Rating Scale (HAM-A)

Psychotherapy Extern, *Center for the Treatment and Study of Anxiety* **2020 – 2021**
Interventions: PE, Exposure and Response Prevention for OCD, and exposure-based CBT for anxiety disorders

Psychotherapy Extern, *Penn Cognitive Therapy Training Clinic* **2019 – 2020**
Interventions: CBT for depression; CBT for insomnia

Study Psychotherapist, *Sleep Neurobiology and Psychopathology Lab* **2019 – 2020**
Interventions: CBT for insomnia

Diagnosis & Assessment Extern, *Assessment Clinic* **2018 – 2019**
Assessments: Wechsler Adult Intelligence Scale (WAIS-IV); Minnesota Multiphasic Personality Inventory-2 (MMPI-2); Diagnostic Interview for Anxiety, Mood, and OCD and Related Neuropsychiatric Disorders (DIAMOND); Structured Clinical Interview for *DSM-IV* Axis II Disorders (SCID-II)

Icahn School of Medicine at Mount Sinai

Study Diagnostician/Clinical Interviewer, *Depression and Anxiety Center* **2015 – 2017**
Assessments: Structured Clinical Interview for *DSM-IV* (SCID-IV); Montgomery-Asberg Depression Rating Scale (MADRS)

Mount Sinai Saint Luke's and Roosevelt Hospitals

Sexual Assault/Domestic Violence Crisis Counselor, *Crime Victims Treatment Center* 2012 – 2015

SELECTED TRAININGS

Veterans Affairs Palo Alto Health Care System

Cognitive Processing Therapy (CPT) for PTSD (2-day training) 2022

Cohen Veterans Network

Suicide Prevention (1-day training) 2021

University of Pennsylvania, *Center for the Treatment and Study of Anxiety (CTSA)*

Cognitive Behavioral Treatment of Social Anxiety Disorder (1-day training) 2021

Behavioral Approaches for Treating Generalized Anxiety Disorder (1-day training) 2021

Exposure and Ritual Prevention for Adult OCD (4-day training) 2020

Exposure and Ritual Prevention for Pediatric OCD (1-day training) 2020

Prolonged Exposure Therapy for Adult PTSD (4-day training) 2020

Prolonged Exposure Therapy for Adolescent PTSD (1-day training) 2020

Corporal Michael J. Crescenzo Veterans Affairs Medical Center (Philadelphia)

Cognitive Behavioral Therapy for Insomnia (2-day training) 2019

CERTIFICATIONS

University of Pennsylvania, *Center for the Treatment and Study of Anxiety (CTSA)*

Certified Prolonged Exposure Therapist 2021

Certified Exposure and Response Prevention Therapist 2021

New York State Department of Health

Certified Rape Crisis Counselor 2013