Mary M. Ryan

Curriculum Vitae

Updated August 2022

Postdoctoral Associate

Department of Biostatistics | Yale University School of Public Health | New Haven, CT 06511

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RESEARCH INTERESTS

Clinical trials, cluster randomized trials, group sequential design, epidemiology of Alzheimer's disease, Alzheimer's disease biomarker discovery

EDUCATION

University of California, Irvine	*Irvine, CA*
Ph.D., Statistics	2021

Dissertation: Robustness and Efficiency in Modern Biostatistical Studies
Advisor: Daniel L. Gillen, Professor and Chair of Statistics

M.S., Statistics	2019
University of Missouri	*Columbia, MO*
B.A., Statistics	2016

Minor, Mathematics

B.J., Journalism	2016

ACADEMIC POSITIONS

Yale University	*New Haven, CT*
Postdoctoral Associate, Department of Biostatistics	2021 - present
University of California, Irvine	*Irvine, CA*
Graduate Research Assistant, Department of Statistics	2017 - 2021
University of Missouri	*Columbia, MO*
Undergraduate Research Assistant, Department of Statistics	2014 - 2016

COLLABORATIVE RESEARCH AFFILIATIONS & APPOINTMENTS

Yale University	*New Haven, CT*
Yale Center for Analytical Sciences	2021 - present
University of California, Irvine	*Irvine, CA*
Gillen/Grill Alzheimer's Disease Research Lab	2017 - present
Data Management and Statistics Core, Alzheimer's Disease Research Center	2017 - 2021

ACADEMIC AWARDS & HONORS

UC Irvine ∣ Carl W. Cotman Predoctoral Scholar Award	2021
UC System Nominee to the 70th Lindau Nobel Laureate Meeting	2020
UC Irvine ∣ Division of Teaching Excellence & Innovation Summer Fellow	2020
UC Irvine ∣ Public Impact Fellow	2019-2020
Honorable Mention: JSM Biopharmaceutical Section Contributed Presentation Award	2019
UC Irvine ∣ MIND Aging Fellow	2017-2019
University of Missouri ∣ University Honors	2016
University of Missouri ∣ Excellence in Undergraduate Research	2015
University of Missouri ∣ Albert Winemiller Scholar	2013-2016

REFEREED JOURNAL PUBLICATIONS

"" indicates mentored graduate student*

1. **Ryan, M.M.**, Gillen, D.L. (2022) "Sequential Sampling in Prospective Observational Studies." *Annals of Applied Statistics.* (Accepted).

2. **Ryan, M.M.**, Gillen, D.L., Grill, J.D. (2021). "Reasons for Undergoing Amyloid Imaging Among Cognitively Unimpaired Older Adults with Elevated and Not Elevated Amyloid." *Annals of Clinical and Translational Neurology.* doi.org/10.1002/acn3.51414

3. **Ryan, M.M.**, Cox, C.G., Witbracht, M., Hoang, D., Gillen, D.L., Grill, J.D. (2020). "Using Direct-to-Consumer Genetic Testing Results to Accelerate Alzheimer's Disease Clinical Trial Recruitment." *Alzheimer Disease & Associated Disorders.* doi.org/10.1097/wad.0000000000000421

4. Cox, C.G., **Ryan, M.M.**, Gillen, D.L., Grill, J.D. (2020). "Is reluctance to share Alzheimer's disease biomarker status with a study partner a barrier to preclinical trial recruitment?" *The Journal of Prevention of Alzheimer's Disease.* dx.doi.org/10.14283/jpad.2020.36

5. **Ryan, M.M.**, Spotnitz, W.D., Gillen, D.L. (2020). "Variance estimation for the Kappa statistic in the presence of clustered data and heterogeneous observations." *Statistics in Medicine.* doi.org/10.1002/sim.8522

6. **Ryan, M.M.**, Grill, J.D., Gillen, D.L. (2019). "Participant and Study Partner Prediction and Identification of Cognitive Impairment in Preclinical Alzheimer's Disease: Study Partner vs. Participant Accuracy." *Alzheimer's Research & Therapy.* doi.org/10.1186/s13195-019-0539-3

7. Cox, C.G., **Ryan, M.M.**, Gillen, D.L., Grill, J.D. (2019). "A preliminary study of clinical trial enrollment decisions among people with Mild Cognitive Impairment and their study partners." *The American Journal of Geriatric Psychiatry.* doi.org/10.1016/j.jagp.2018.10.016

MANUSCRIPTS UNDER REVIEW/IN PROGRESS ───────────────

8. **Ryan, M.M.**, Esserman, D., Li, F. "Maximin optimal cluster randomized designs for assessing treatment effect heterogeneity." (In Revision).

9. **Ryan, M.M.**, Gillen, D.L. "Sequential Sampling for Studies Utilizing the Kappa Statistic." (In Preparation).

10. Dolmadjian, L.^*, **Ryan, M.M.**, Gillen, D.L., Grill, J.D. "Impact of Study Partner Replacement in Mild Cognitive Impairment Clinical Trials." (In Preparation).

SELECTED PRESENTATIONS, POSTERS, & SHORT COURSES

INVITED PRESENTATIONS

ASQ Silicon Valley Section's Statistics & Reliability Discussion Group (Virtual) — April 2021

1. *Variance Estimation for the Kappa Statistic in the Presence of Clustered Data and Heterogeneous Observations*

Department of Family Medicine, Oregon Health & Science University (Virtual) — February 2021

2. *Sequential Sampling in Prospective Observational Studies*

Department of Global & Community Health, George Mason University (Virtual) — February 2021

3. *Sequential Sampling in Prospective Observational Studies*

Department of Biostatistics, Wake Forest University (Virtual) — February 2021

4. *Sequential Sampling in Prospective Observational Studies*

Division of Biostatistics, University of Minnesota (Virtual) — February 2021

5. *Sequential Sampling in Prospective Observational Studies*

Department of Mathematics & Statistics, Wake Forest University (Virtual) — January 2021

6. *Sequential Sampling in Prospective Observational Studies*

ASA BIOP Webinar (Virtual) — January 2021

7. *Variance Estimation for the Kappa Statistic in the Presence of Clustered Data and Heterogeneous Observations*

Department of Biostatistics, St. Jude Children's Research Hospital (Virtual) — January 2021

8. *On Confounding, Efficiency, & Prospective Observational Study Design*

Department of Biostatistics, Vanderbilt University (Virtual) — December 2020

9. *On Confounding, Efficiency, & Prospective Observational Study Design*

Orange County Biostatistics Symposium (Virtual) — November 2020

10. *Variance Estimation for the Kappa Statistic in the Presence of Clustered Data and Heterogeneous Observations*

CONTRIBUTED PRESENTATIONS

Joint Statistical Meetings (Washington, D.C.) — August 2022

11. *Maximin Optimal Cluster Randomized Designs for Assessing Treatment Effect Heterogeneity*

Society for Clinical Trials (San Diego, CA)   May 2022

12. *Maximin Optimal Cluster Randomized Designs Accounting for Treatment Effect Heterogeneity*

Joint Statistical Meetings (Denver, CO)   July 2019

13. *An Extension of Cohen's Kappa for Clustered Data and Group Sequential Testing ⋆ Received JSM Contributed Presentation Honorable Mention Award from ASA Biopharmaceutical Section*

Western North American Region Annual Meeting (Portland, OR)   June 2019

14. *An Investigation of the Kappa Statistic Under Clustered Data and Group Sequential Testing, with an Application to Surgical Rating*

POSTERS ————————————————————

Alzheimer's Association International Conference (Virtual/San Diego, CA)   August 2022

15. *Impact of Study Partner Type on Primary Endpoint Volatility in a Phase 3 Registration Trial of Mild-to-Moderate Alzheimer's Disease*

Clinical Trials on Alzheimer's Disease (Virtual)   November 2020

16. *Perceptions of Amyloid Imaging Among Cognitively Normal Older Adults with Elevated and Not Elevated Amyloid*

Clinical Trials on Alzheimer's Disease (San Diego, CA)   December 2019

17. *Using Direct-to-Consumer Genetic Testing Results in Alzheimer's Disease Clinical Trial Recruitment*

Alzheimer's Association International Conference (Los Angeles, CA)   July 2019

18. *Participant and Study Partner Prediction and Identification of Cognitive Impairment in Preclinical Alzheimer's Disease: Study Partner vs. Participant Accuracy*

REMIND Emerging Scientists Symposium (Irvine, CA)   March 2018

19. *Scientific Necessity of Study Partners in Preclinical Alzheimer's Disease Trials*

SHORT COURSES & WORKSHOPS ————————————————————

Computer-Assisted Reporting Conference (Newport Beach, CA)   March 2019

20. *R: Models for Clustered and Correlated Data*
21. *Building Graphics in R*

Computer-Assisted Reporting Conference (Chicago, IL)   March 2018

22. *R: Machine Learning and Data Models*

TEACHING EXPERIENCE

University of California, Irvine   *Irvine, CA*

    *Instructor of Record, Basic Statistics   Summer 2020
    Teaching Assistant, Introduction to Biological Statistics   Winter 2020
    Teaching Assistant, Introduction to Probability & Statistics for Computer Science   Fall 2019
    *Instructor of Record, Introduction to Biological Statistics   Summer 2017

University of Missouri   *Columbia, MO*

    Teaching Assistant, Advanced Data Journalism   Spring 2016

PEER REVIEW ACTIVITIES

Statistics in Medicine, Statistics in Biopharmaceutical Research

SERVICE TO PROFESSION

Justice, Equity, Diversity, and Inclusion (JEDI) Outreach Group   2022 - present

    Social Media Manager, Instagram

Joint Statistical Meetings (Washington, D.C.)   August 2022

    Topic Contributed Session Chair, "New Models, Diagnostics and Considerations
    in Evaluating Intervention and Policy Effects"

INSTITUTIONAL SERVICE

University of California, Irvine   *Irvine, CA*

    Student Representative, Department of Statistics Seminar Committee   2020 - 2021

    Department of Statistics Student Representative, DECADE   2019-2021

    Co-Chair, Research and Education in Memory Impairments and Neurological Disorders   2018-2021

    Orangizer, Department of Statistics NSF GRFP Application Repository   2019-2021

    Department of Statistics Student Representative   2017-2018

COMMUNITY INVOLVEMENT & OUTREACH

Statistics & R Instructor, YCAS Young Scholars in Biostatistics (New Haven, CT) July - Aug 2022

Guest Lecturer, YCAS Young Scholars in Biostatistics Program (New Haven, CT)   July 2022

    Introduction to Data Science

Workshop Instructor, Pathways to Science Summer Scholars (New Haven, CT)   July 2022

    *STEM Meets Storytelling: Using Data Science to Tell Stories about Our
    Communities*

Guest Lecturer, Exploring Science Seminar Series (New Haven, CT)   March 2022

    Data and Me: What is Biostatistics and How Do We Use It?

PROFESSIONAL ORGANIZATIONS

American Statistical Association, Member	2018 - present
ISTAART, Alzheimer's Association, Member	2019 - present
Caucus for Women in Statistics, Member	2020 - present
ENAR, Member	2021 - present
Justice, Equity, Diversity, and Inclusion (JEDI) Outreach Group, Member	2022 - present
WNAR, Member	2019 - 2021

STATISTICAL & PROGRAMMING LANGUAGES

R

Python

SAS

SQL

HTML/CSS