

## Raphael Jamale Murden

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CONTACT INFORMATION	1518 Clifton Rd. Grace Crum Rollins Building Room 312 Atlanta, GA 30332	<i>Mobile:</i> +1-901-335-8743 <i>Office:</i> +1-404-727-0859 <i>Email:</i> rmurden@emory.edu
EDUCATION	<b>Emory University</b> , Atlanta, GA Ph.D., Biostatistics, August 2015 - July 2021 <ul style="list-style-type: none"><li>Dissertation: <i>Data Integration and Functional Data Analysis Methods with Applications to Neuroimaging Statistics and Ambulatory Blood Pressure</i></li><li>Advisor: Benjamin B. Risk, PhD</li></ul> M.S., Biostatistics, December 2019  <b>Washington University</b> , Saint Louis, MO M.A., Statistics, May 2011 <ul style="list-style-type: none"><li>Thesis: <i>Effectiveness of Multiple Imputation: A case study on HIV risk behaviors in women receiving treatment for substance use disorders</i></li><li>Advisors: Edward Spitznagel, PhD and Bipasha Biswas, PhD (St. Louis University)</li></ul> <b>Morehouse College</b> , Atlanta, GA B.A., Mathematics; Music Minor, May 2008 <ul style="list-style-type: none"><li><i>cum laude</i></li></ul>	
RESEARCH INTERESTS	Multimodal data integration methods, functional data analysis, health disparities, HIV	
ACADEMIC APPOINTMENTS	<b>Department of Biostatistics and Bioinformatics,</b> <b>Rollins School of Public Health, Emory University</b> , Atlanta, GA <i>Research Assistant Professor</i> <b>August 2021 - Present</b>  <b>Department of Mathematics,</b> <b>Spelman College</b> , Atlanta, GA <i>Instructor</i> <b>August 2013 - May 2015</b>  <b>Department of Mathematics,</b> <b>Allen University</b> , Columbia, SC <i>Professor</i> <b>August 2011 - June 2013</b>	
PEER-REVIEWED PUBLICATIONS	<ol style="list-style-type: none"><li>Erving, C. L., Zajdel, R., McKinnon, I. I., Van Dyke, M. E., Murden, R. J., Johnson, D. A., Moore, R. H., &amp; Lewis, T. T. (2023). Gendered Racial Microaggressions and Black Women's Sleep Health. <i>Social Psychology Quarterly</i>, 01902725221136139.</li><li>Lauren Lichten, <b>R. Murden</b>, Nadia Ali, &amp; Cecilia Bellcross. Genetic Counselors' Perceptions of Student Supervision Across Service Delivery Models. Available at request</li><li><b>R. Murden</b>, Zhang Z., Guo Y., &amp; Risk B., (2022). Interpretive JIVE: Connections with CCA and an Application to Brain Connectivity. <i>Frontiers in Neuroscience Vol. 16</i>. DOI: 10.3389/fnins.2022.969510</li></ol>	

4. Waldrop, D., **Murden, R.**, Montilus, M.C., Balthazar, M., Irwin, C., Holstad, M., & Ownby, R.L.. (2022) Durable viral suppression among persons with HIV in the deep south: an observational study. *AIDS Care*. DOI: 10.1080/09540121.2022.2136350
5. McKinnon, I., Johnson, D., **Murden, R.**, Erving, C., Parker, R., Van Dyke, M., Vaccarino V., Booker B., Moore R., & Lewis, T. (2022). Extreme racism-related events and poor sleep in African-American women. *Social Science & Medicine*, 115269. 10.1016/j.socscimed.2022.115269.
6. Spikes, T, **Murden, R.**, McKinnon, Bromfield, S., Van Dyke, M., Moore, R., Rahbari-Oskoui, F., Quyummi, A., Vaccarino, V., & Lewis, T. (2022) Association of Net Worth and Ambulatory Blood Pressure in Early Middle-aged African American Women. *JAMA Network Open* 5(2):e220331. DOI: 10.1001/jamanetworkopen.2022.0331
7. Risk, B. B., **Murden, R. J.**, Wu, J., Nebel, M. B., Venkataraman, A., Zhang, Z., & Qiu, D. (2021). Which multiband factor should you choose for your resting-state fMRI study?. *NeuroImage*, 234, 117965.
8. Frew, P. M., **Murden, R.**, Mehta, C. C., Chamberlain, A. T., Hinman, A. R., Nowak, G., ... & Bednarczyk, R. A. (2019). Development of a US trust measure to assess and monitor parental confidence in the vaccine system. *Vaccine*, 37(2), 325-332.
9. Waldrop-Valverde, D., **Murden, R. J.**, Guo, Y., Holstad, M., & Ownby, R. L. (2018). Racial disparities in HIV antiretroviral medication management are mediated by health literacy. *HLRP: Health Literacy Research and Practice*, 2(4), e205-e213
10. Frew, P., **Murden, R.**, Mehta, C. C., Chamberlain, A., Hinman, A. R., Nowak, G., & Bednarczyk, R. A. (2017). Development of a Vaccine Confidence Index for Monitoring and Assessing Parental Confidence in Childhood Vaccination. In *Open Forum Infectious Diseases* (Vol. 4, No. suppl\_1, pp. S518-S518). US: Oxford University Press.
11. Draper, B., Marcin, D., Margolskee, A., **Murden, R.**, Attarian, A., Evans, M. V., & Yokley, K. A. (2009). Feasibility of metabolic parameter estimation in pharmacokinetic models of carbon tetrachloride exposure in rats. *Toxicological and Environ Chemistry*, 91(3), 521-546.

MANUSCRIPTS IN  
PREPARATION

1. **R. Murden**, Ganzhong Tian, Deqiang Qiu, and Benjamin B. Risk. Probabilistic Joint and Individual Variation Explained. In preparation
2. **R. Murden** Tenè Lewis, Amita Manatunga, Benjamin Risk. Generalized Additive Mixed Models for Assessing the Relationship between Ambulatory Blood Pressure Profiles and Body Mass Index in African-American
3. Tenè Lewis, **Raphael Murden**, Telisa Spikes, Christy Erving, Izraelle McKinnon, Miriam Van Dyke, Rachel Parker, Arshed Quyummi, Viola Vaccarino, René H. Moore. Network Stressors, Personal Stressors and Ambulatory Blood Pressure in African-American Women

CONFERENCE  
PUBLICATIONS

1. Tené Lewis, **R. Murden**, Reneé Moore, Telsia Spikes. Associations between Personal versus Network Stressors and Ambulatory Blood Pressure in African-American Women 2021
2. Christy Erving, Izraelle McKinnon, Miriam Van Dyke, **R. Murden**, Reneé Moore, Bianca Booker Tené Lewis. Superwoman Schema Endorsement, Social Role Engagement, and Black Women’s Mental Health 2021
3. Crista L Irwin, Drenna Waldrop, bf R. Murden, Rebecca Gary. Aerobic Exercise Adherence Among Older People Living With HIV.

INVITED  
PRESENTATIONS

1. **R. Murden**, Risk B., Fields N., Erving C., Moore R., Udaipuria S., Quyyumi A., Vaccarino V., Manatunga, A., and Lewis, T. (2023) Assessing the Relationship Between Ambulatory Blood Pressure Profiles and Obesity via Generalized Additive Mixed Models. *T32 Multidisciplinary Research Training to Reduce Inequalities in Cardiovascular Health*, Emory University, Atlanta, GA, U.S.A., April 12, 2023
1. **R. Murden**, Risk B., Fields N., Erving C., Moore R., Udaipuria S., Quyyumi A., Vaccarino V., Manatunga, A., and Lewis, T. (2023) Assessing the Relationship Between Ambulatory Blood Pressure Profiles and Obesity via Generalized Additive Mixed Models. *Imaging and Functional Data Working Group*, Colorado School of Public Health, Atlanta, GA, U.S.A., April 12, 2023
1. **R. Murden**, Zhang Z., Guo Y., Risk B., (2022). Interpretive JIVE: Connections with CCA and an Application to Brain Connectivity. *Georgia Statistics Day*, Athens, GA, U.S.A., October 28, 2022

PRESENTATIONS

1. **R. Murden**, T. Lewis, A. Manatunga, and B. B. Risk. Using generalized additive models to analyze ambulatory blood pressure monitoring *ENAR 2023*, Nashville, TN, U.S.A., March 19–March 22, 2023. Topic contributed session.
2. **R. Murden**, T. Lewis, A. Manatunga, and B. B. Risk. Using generalized additive models to analyze ambulatory blood pressure monitoring *ENAR 2022*, Houston, TX, U.S.A., March 27–March 30, 2022. Topic contributed session.
3. **R. Murden**, Y. Guo, and B. B. Risk. A Comparison of Angle-Based and Iterative JIVE *JSM 2020 Virtual Conference*, Online, August 2–August 6, 2020. Topic contributed session.
4. **R. Murden**, Y. Guo, D. Qiu, and B. B. Risk. Joint Analysis of Neuroimaging and Psychosocial Factors *JSM 2019*, Denver, CO, U.S.A., July 28–August 1, 2019. Topic contributed session.
5. **R. Murden**. Joint and Individual Variance Explained *S.M.A.R.T Research Group 2018*, Johns Hopkins University, Baltimore, MA, U.S.A. August 10, 2019

## POSTERS

1. Rachel Parker\*, **Raphael Murden**, Amita Manatunga, Christy L. Erving, René Moore, Shivika Udaipuria, Arshed Quyyumi, Viola Vaccarino, Tené Lewis. \*Presenting author. Assessing Financial Vulnerability and Ambulatory Blood Pressure in African-American Women Utilizing Regression Trees. American Psychosomatic Society's Annual Meeting, San Juan, Puerto Rico, March 8–11, 2023.
2. Drenna Waldrop-Valverde, **R. Murden\***, Ying Guo, Marcia McDonnell Holstad, and Raymond Ownby. \*Presenting author. Predictors of stable viral suppression among men and women in the US Deep South. International Association of Providers of AIDS Care, HIV Nursing Conference, Rome, Italy, September 21–22, 2019.
3. Drenna Waldrop-Valverde, Eduardo Valverde, **R. Murden\***, Ying Guo, Marcia McDonnell Holstad, and Raymond Ownby. \*Presenting author. Internalized HIV stigma in men and women in the US Deep South. International Association of Providers of AIDS Care, HIV Nursing Conference, Rome, Italy, September 21–22, 2019.

## HONORS AND AWARDS

### **Michael H. Kutner Doctoral Student Award**

*Department of Biostatistics and Bioinformatics, Emory University (2020)*

### **Bouchet Graduate Honor Society**

*Emory University Chapter (2020)*

### **Bridging Gaps Diversity Award**

*Washington University (2011)*

### **Mary McLeod-Bethune Leadership Award**

*Washington University (2011)*

### **Mapp Award for Outstanding Research**

*Morehouse College (2008)*

## SCHOLARSHIPS AND FELLOWSHIPS

### **Graduate Student Fellowship**

*Laney Graduate School, Emory University (2015 - 2019)*

### **University Fellowship**

*Washington University (2008-2011)*

### **Full-Tuition Academic Scholarship**

*Morehouse College (2004-2008)*

## SOFTWARE

Software available at [github.com/rmurden](https://github.com/rmurden).

**R. Murden**, Zhang Z., Guo Y., Risk B., (2022). An R package for Canonical JIVE.

[cran.r-project.org/web/packages/cjive/](https://cran.r-project.org/web/packages/cjive/)

RESEARCH  
SUPPORT

**Supplement to Promote Diversity in Health-Related Research.**

FOA Number: PA-20-222

Title: Functional Data Analysis Approaches for Longitudinal Data from Ambulatory Blood Pressure Monitoring

Parent Grant: Psychosocial Stress Due to COVID-19 and Vascular Aging in African-American Women – R01 HL158141-02 (PI: T Lewis)

Major Goals: The goals of this study are to examine: 1) whether and how trajectories of ABP change over the 4-year follow-up period; 2) whether financial stress is associated with these changes; and 3) whether the COVID pandemic has an impact.

Status of Support: Active

Source of Support: NIH/NHLBI

Project Start and End Date: 01/2023 - 01/2025

Total Award Amount:

Effort: 75%

MENTORING

**Ph.D. Students Supervised**

- Rachel Parker (current). Statistical Methods in Social Determinants of Health Research.

**Genetic Counseling Master's Degree Program**

*Consultant for Quantitative Analysis and Study Design* (2021-Present)

- Advises master's degree students in developing surveys and conducting analysis of survey results

**Summer Institute in Biostatistics at Emory University**

*Graduate Student Mentor* (2017-2019)

**Spelman College**

*Faculty Mentor* (2013-2015)

- Assisted with advising undergraduate students performing research
- Held regular formal and informal meetings with students seeking advice about school and life.
- Escorted/Chaperoned students to StatFest North Carolina State University

TEACHING  
EXPERIENCE

**Emory University**

*Assistant research Professor*

- BIOS 500: Statistical Methods I

*Instructor*

- Genetics Counseling Summer SPSS Short Course
- BIOS 591PL: Statistical Methods II - Lab
- BIOS 500L: Statistical Methods I - Lab

*Teaching Assistant*

- BIOS 500: Statistical Methods I - Lecture, Lab
- BIOS 591P: Statistical Methods I - Lecture, Lab
- BIOS 508: Categorical Data Analysis
- School of Medicine Clinical Research Bootcamp

*Invited Lecturer*

- BIOS 500: Statistical Methods I - Lecture
- BIOS 501: Statistical Methods II - Lecture
- BIOS 508: Categorical Data Analysis

- Summer Institute in Biostatistics

### **Spelman College**

#### *Instructor*

- MAT 107: Contemporary Mathematics
- MAT 110: College Algebra
- MAT 116: Pre-Calculus II
- MAT 120: Accelerated PreCalculus
- MAT 193: Honors Quantitative Reasoning
- MAT 211: Applied Calculus I

### **Morehouse College**

#### *Instructor*

- College Algebra - Pre-Freshman Summer Enrichment Program

### **Allen University**

#### *Professor*

- MAT 109: Fundamentals of Math I
- MAT 110: Fundamentals of Math II
- MAT 111: College Algebra (MAT 111)
- MAT 303: Differential Equations
- MAT 441: Real Analysis I
- MAT 445: Complex Variables

## SERVICE AND OUTREACH

### **Public Health and Broader Community**

- *Out of Hand Theater Company*, Advisory Board Member (2023-Present)
  - Developing plans to analyze internal company data to assess and improve programming
- *Performance Hypothesis, LLC*, Advisory Board Member (2021-Present)
  - Secured CDC and Georgia Department of Health funding to address COVID-19 vaccine hesitancy in rural areas of Georgia (Project title: Our Time is Now)
  - Developed survey and advised on data collection and analysis related to Our Time is Now
  - Host Committee Member, Dance/USA Conference 2023, Atlanta, GA

### **Emory University**

- *Biostatistics Master's Students' Poster Presentation*, Poster Judge (2022)
- *Dept. of Biostatistics and Bioinformatics - Ph.D. Student Admissions Committee*, Member (2021-Present)
- *Laney Graduate School - Summer Opportunity for Academic Research (LGS-SOAR), Public Health and Quantitative Science Division*, Lead Division Instructor (2020)
- *Biostatistics Student Council*, Member (2018-Present)
- *Rollins School of Public Health Doctoral Student Advisory Council*, Member (2018-Present)
- *StatFest (2017)*, Organizing Committee member
- *LGBTQ+ Graduate Student Coalition*, Founder, Steering Committee member, and (former) President (2016 -)

### **Statistics Community**

- *ENAR: New Data Science Advances in Imaging*, Session Chair, (2022)
- *Georgia Statistics Day*, Session Chair, Poster Judge (2021)
- *StatFest: Graduate Student Panel*, Moderator (2020)
- *ENAR Diversity Workshop*, Participant (2018)

- *JSM Diversity Workshop Mentoring Program*, Participant (2016)
- *StatFest*, Faculty Mentor (2015)

**Allen University**

- *Institutional Assessment Committee*, Member (2012-2013)
- *Student Recruitment and Retention Committee*, Member (2011-2013)

PROFESSIONAL  
EXPERIENCE

**Rollins School of Public Health Department of Biostatistics & Bioinformatics, Emory University, Atlanta, GA**

*Research Assistant Professor*

**2021-Present**

- Work with principal investigators, database managers, and research coordinators to provide data management support for on-going and discontinued studies
- Perform statistical analyses with focus on but not limited to longitudinal time-series data
- Prepare written results for publication in peer-reviewed journals and oral presentations of on-going analyses for members of research team
- Train, mentor, and advise masters' students in data management and data analysis

**Rollins School of Public Health Department of Epidemiology, Emory University, Atlanta, GA**

*Biostatistics Research Assistant*

**2020-2021**

- Work with principal investigator, database manager, and research coordinators to provide data management support for an on-going study
- Perform statistical analyses with focus on but not limited to longitudinal time-series data
- Prepare written results for publication in peer-reviewed journals and oral presentations of on-going analyses for members of research team
- Train M.P.H. students in data management and data analysis

**Rollins School of Public Health, Emory University, Atlanta, GA**

*Biostatistics Tutor/Consultant*

**2018-2019**

- Held regular walk-in office hours for students taking Master's-level biostatistics courses
- Provided statistical support to MPH students writing their theses

**Biostatistics Collaboration Core, Emory University, Atlanta, GA**

*Statistical Consultant*

**2015-2016**

- Performed statistical data analyses and sample size calculations
- Provided written and oral presentations of statistical methodology and analysis results for both statisticians and collaborating scientists
- Held regular meetings with collaborative scientists to discuss analysis plans and results

**Pediatric Neurology Department, Washington University School of Medicine, St. Louis, MO**

*Database Consultant*

**Summer 2011**

- Assisted in managing and cleaning data compiled from a clinical study of a medication used to treat cerebral palsy in children
- Extracted and compiled numerical information from EMG, EEG and instruments used to measure spasticity to form datasets using MATLAB

**Institute for Pure and Applied Mathematics/Amgen Inc., Los Angeles, CA**

*Research Assistant*

**Summer 2008**

- Aiming to find a physiologically reasonable parameter space that could cause oscillation in hemoglobin levels, we investigated the negative feedback loop between this protein and the hormone that causes humans to make red blood cells; erythropoietin
- Found a parameter space for which our integer-equation model of this system did not attain homeostasis
- We reported our findings to the scientists at Amgen as well as our colleagues in the Research in Industrial Projects for Students (RIPS 2008) program

**Research Experience for Undergraduates in Mathematics, North Carolina State University/U.S. Environmental Protection Agency, Raleigh, NC *Research Assistant* Summer 2007**

- Performed analysis to optimize the numerical value of a particular metabolic parameter in a differential-equation pharmacokinetic model of the body of a rat after exposure to carbon tetrachloride
- Designed an experiment that would produce data more conducive to the analysis we had implemented after finding that data from published experiments was not
- Concluded the summer with a written report and poster presentation of our findings

PROFESSIONAL MEMBERSHIPS American Statistical Association (ASA)  
 Eastern North American Region of the International Biometric Society (ENAR)  
 Caucus for Women in Statistics  
 American Psychometric Society

SOFTWARE SKILLS R, SAS, Matlab, experience with SPSS, Stat, FSL, Bash scripting

HOBBIES Violin, Weightlifting, Yoga.

CITIZENSHIP U.S.A.

REFERENCES AVAILABLE TO CONTACT

**Benjamin B. Risk, Ph.D.** (email: brisk@emory.edu; phone: 404-712-5081)

- Assistant Professor, Department of Biostatistics and Bioinformatics, Rollins School of Public Health, Emory University
- *Dr. Risk is my co-advisor.*

**Renee Moore, Ph.D.** (email: renee.moore@emory.edu; phone: 404-727-9291)

- Research Professor, Department of Epidemiology and Biostatistics, Dornsife School of Public Health, Drexel University

**Amita Manatunga, Ph.D.** (email: tene.t.lewis@emory.edu; phone: 404-727-1309)

- Professor, Department of Biostatistics and Bioinformatics, Rollins School of Public Health, Emory University

**Tené Lewis, Ph.D.** (email: tene.t.lewis@emory.edu; phone: 404-727-6706)

- Associate Professor, Department of Epidemiology, Rollins School of Public Health, Emory University

**Drenna Waldrop-Valverde, Ph.D.** (email: drenna.waldrop-valverde@emory.edu; phone: (404) 712-9487)

- Associate Professor, Nell Hodgson Woodruff School of Nursing, Emory University