



Become a Research Volunteer (Quantitative Emphasis) at Harvard Medical School

The Center for Health Outcomes and Interdisciplinary Research (CHOIR) at Harvard Medical School (HMS) and Massachusetts General Hospital (MGH) is recruiting students with quantitative skills to assist and gain experience on clinical research projects. CHOIR's mission is to conduct interdisciplinary research to promote health, well-being, and equity across the lifespan. The research position is ideal for students who are interested in a quantitative career (e.g., statistics, data science, engineering) in the health care sector or in leading academic medical centers.

Research volunteers will have the opportunity to work closely with Drs. Ryan Mace and Jafar Bakhshai on statistical aspects of clinical research studies at the intersection of psychology and medicine. The overarching goal of this work is to inform mind-body and lifestyle interventions to promote health and well-being for persons with acute and chronic illness and their family caregivers, in both hospital and community settings. These studies will produce ample opportunities for research volunteers to assist or co-author presentations and publications. For more information on CHOIR, formerly called the Integrated Brain Health Clinical and Research Program, please visit our website: <https://www.integratedbrainhealth.org>.

Eligibility:

- Undergraduate or graduate student
- Strong desire to develop research and quantitative skills
- Able to dedicate 8-15 hours per week for clinical research
- Work can be completed remotely and flexibly
- Attendance at weekly project meetings (see below) is encouraged
- Detail-oriented, organized, and independent worker

Preferred Technical Skills:

- Experience with coding languages (e.g., R, python) and statistical software packages (e.g., SPSS, SAS, MPlus, Excel)
- Basic understanding of descriptive and inferential statistical concepts
- Experience with big data methods and machine learning

Projects:

1. **Meta-analysis of dementia risk factors:** This is a meta-analysis of randomized control trials of mindfulness-based interventions targeting lifestyle factors linked to dementia. The results will quantify the benefits of practicing mindfulness on various brain health behaviors (e.g., exercise, sleep) and inform interventions for older adults with cognitive decline.
2. **Leveraging electronic health record data to learn about predictors of prolonged opioid use following orthopedic trauma surgery:** This study will take advantage of the availability of a large, representative dataset of orthopedic trauma patients treated at the Massachusetts General Hospital (MGH) following hospital admission to learn about the prominent predictors of prolonged opioid use as targets of interventions to improve quality of care for this under-addressed aspect of orthopedic trauma.
3. **Longitudinal analysis of behavior change on outcomes of a mind-body intervention for older adults with early cognitive decline:** Using intensive longitudinal data analysis (ILD), we will explore associations between habit change (mindfulness, sleep, mindfulness tracked via smartphone and wearable device) and study outcomes (cognitive functioning, lifestyle factors) in response to a mind-body intervention for older adults with early cognitive decline .
4. **Assessing the fidelity to a web-based mind-body treatment using Google Analytics data:** This study aims to leverage the Google Analytics to assess the fidelity to a Web-based mind-body intervention for painful conditions among patients with upper extremity illness.



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Google Analytics is a user experience software that provides statistics and basic analytical tools for optimization of care service delivery.

Tasks and Opportunities:

- Manage, store, clean, code, and manipulate large health care datasets
- Conduct preliminary analyses (e.g., identify outliers, check missing data, assess normality)
- Conduct literature searches
- Assist manuscript writing
- Perform exploratory data analysis and visualization
- Explore Google Analytics data of web-based interventions
- Assist model building for regression and machine learning analyses
- Assist IRB submissions for research studies
- Further develop quantitative and research skills through research meetings, journal club, office hours (quantitative, research writing), and seminars presented by interdisciplinary medical experts at MGH and Harvard

How to Apply:

Submit a resume or CV to Drs. Jafar Bakhshaie (jbakhshaie@mgh.harvard.edu) Ryan Mace (rmace@mgh.harvard.edu). We will invite applicants for a brief Zoom interview. You can also email with any questions about the position before applying.