



Reissue of the Predoctoral Training in Advanced Data Analytics (TADA) for Behavioral and Social Sciences Research (BSSR) Institutional Research Training Program [T32]

Michael Spittel, Ph.D.

Health Scientist Administrator

Office of Behavioral and Social Sciences Research

National Institutes of Health

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- ▶ **Concept Clearance:** Reissue (RFA-OD-19-011)
- ▶ **Title:** *Predoctoral Training in Advanced Data Analytics (TADA) for Behavioral and Social Sciences Research (BSSR) - Institutional Research Training Program (T32)*
- ▶ **Objective:** The TADA T32 is a 5-year pre-doctoral training program focused on applying innovative computational and data science analytic approaches to help shape tomorrow's BSSR health research workforce.
 - ◆ Budget for the reissue is contingent on NIH appropriations and submissions of meritorious applications.
 - ◆ Currently OBSSR supports 8 sites from the initial NOFO in 2020.
 - ◆ The awardees, on average, have budgets ~\$250,000 direct cost/year per site.
 - ◆ Award Project Period: 5 years
- ▶ **Council Action:** Vote for the renewal of the TADA program - *Predoctoral Training in Advanced Data Analytics for Behavioral and Social Sciences Research (BSSR) - Institutional Research Training Program.*



Rationale for the TADA program

Current methodological and statistical training in BSSR was not keeping up with the rapid changes in how data are obtained and studied.

Additionally, training in BSSR methods/statistics was rather narrowly limited to training for academic careers only.

Citations:

Trans NIH Research Opportunities in the Basic Behavioral and Social Sciences
(https://dpcpsi.nih.gov/sites/default/files/Day-1-130PM-bBSSR-WG-Report_508.pdf)

NASEM; Graduate Training in the Social and Behavioral Sciences: Proceedings of a Workshop—in Brief. Academies Press (US); 2017 Sep 20. PMID: 28953346.

Program Features

The TADA program funds pre-doctoral students for up to two years of graduate training (including tuition, stipend, expenses) and includes:

- An interdisciplinary team of scientific mentors: trainees have both a BSSR mentor and mentor who knows advanced computational methods (computer or data science)
- Coursework and training experiences in academia or industry
- Collaborative research opportunities
- Adequate mentorship in advance computational methods with an emphasis on principles and practices that promote reproducibility of results

Final feature is that OBSSR will have an active role in convening and facilitating cross site exchanges; training webinars; and annual in person meetings

TADA Awarded Sites in FY 2020

SITE	TITLE	PRINCIPAL INVESTIGATOR(S)	ADMIN IC
University of Washington	Data Science Training in Demography and Population Health	Sara R. Curran, Zack W. Almquist, Tyler McCormick, Jonathan C. Wakefield	NICHHD
Stanford University	Stanford BSSR Predoctoral Training Program at the Intersection of Data Sciences with Behavioral, Social, and Population Health Research	Lorene M. Nelson, Abby C. King	NHLBI
University of California, Berkeley	Computational Social Science Training Program	David Harding, Maya Petersen, Heather Haveman	NICHHD
University of California, San Diego	Advanced Data Analytics Training for Behavioral and Social Sciences Research	Eric B. Hekler, Dimitris Politis, Kristen J. Wells, Amy M. Sitapati	NIMH
University of California, San Francisco	UCSF Data Science Training to Advance Behavioral and Social Science Expertise for Health Research (DaDATABASE) Program	Medellena Maria Glymour, William Brown, Aric Andrew Prather	NIMHD
Johns Hopkins University, Bloomberg School of Public Health	Data integration for causal inference in behavioral health	Elizabeth A. Stuart	NIMH
University of Arkansas for Medical Sciences	Arkansas Center for Health Disparities T32 Predoctoral Research Training Program	John M. Tilford, Jonathan P. Bona	NIMHD
Emory University	Training in Advanced Data Analytics to End Drug-Related Harms (TADA)	Hannah L. Cooper, Lance A. Waller, Abeed H. Sarker	NIDA

TADA Self-Reported Trainees Characteristics

To date, TADA has supported 65 trainees (54 current and 11 alumni) across diverse disciplines including sociology, epidemiology, public health, health economics, health systems and services, mental health, and public policy

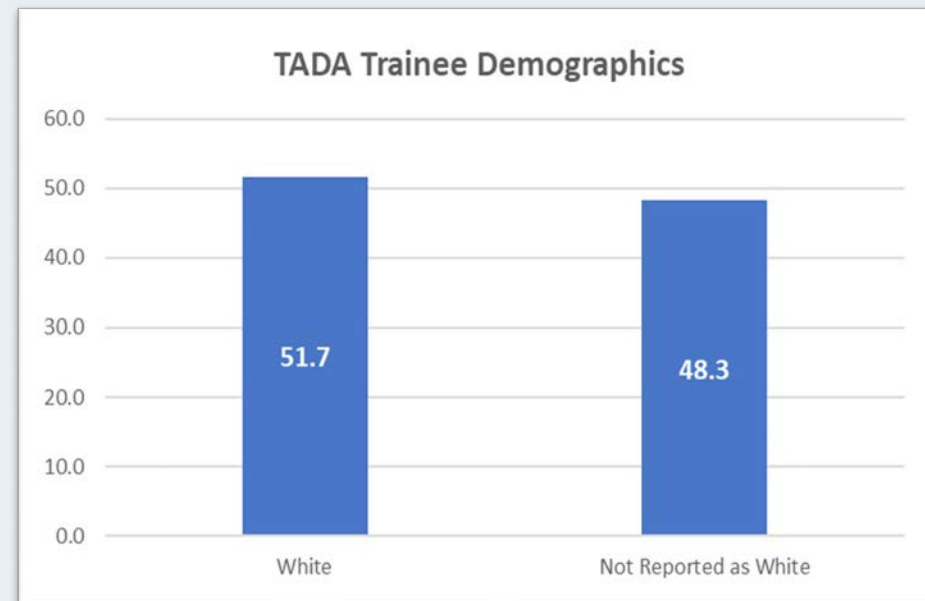
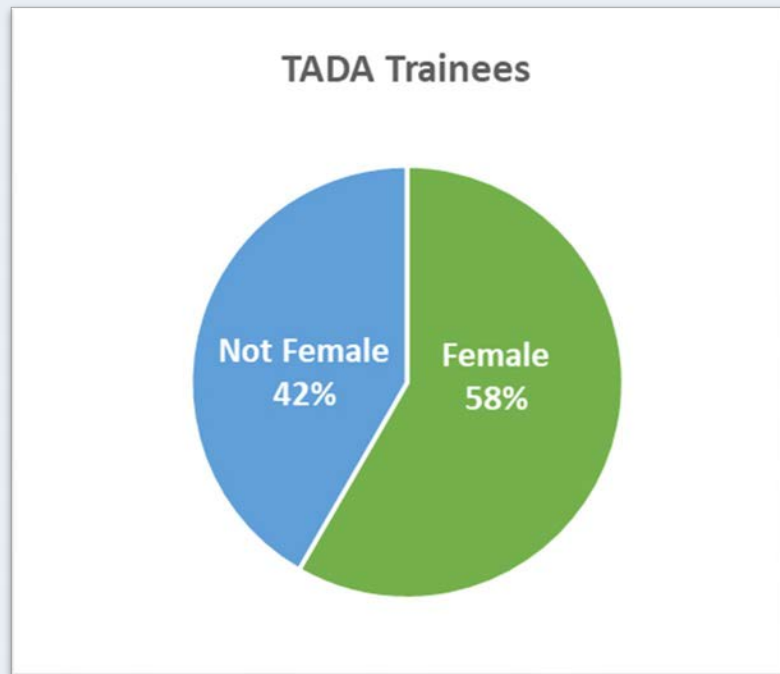
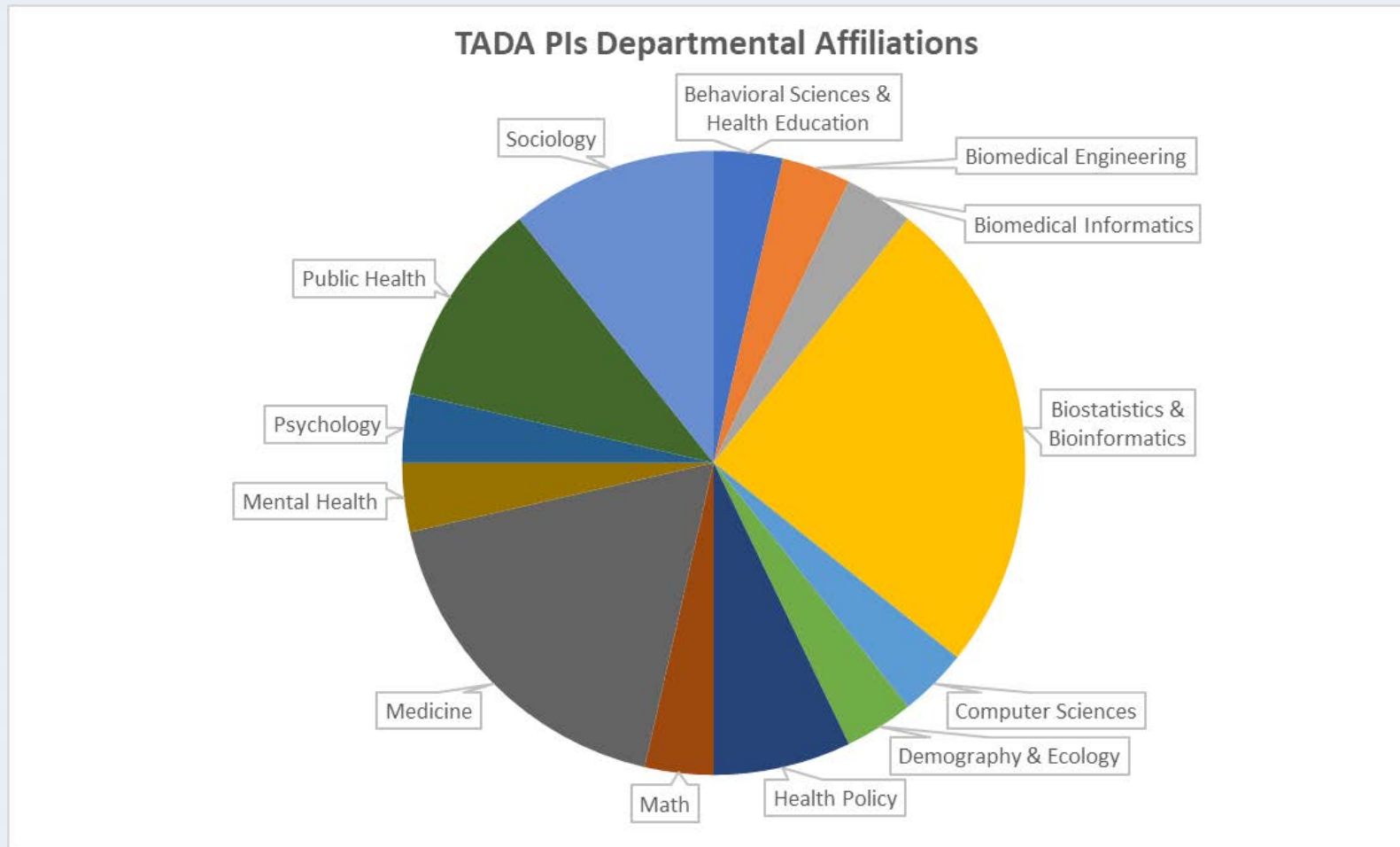


Figure 1: TADA Trainee Reported Sex Demographics (N=60).

Figure 2: TADA Trainee Race/Ethnicity Demographics (N=60).

TADA Training Program Characteristics



TADA PI Departmental Affiliations. The departmental affiliations are not mutually exclusive and have been generalized into the above categories for ease of reporting. There are 22 total PIs across all 8 sites.

TADA evaluation metrics

- ▶ The overall evaluation (planned for 8-10 years after the start of the program in 2020) will be based on metrics that include:
 - ◆ Subsequent participation in an academic research training or career development program
 - ◆ Authorship of scientific publications in peer-reviewed journals
 - ◆ Successful completion of a BSSR doctoral degree program
 - ◆ Subsequent participation in research or employment in a research field
 - ◆ Subsequent independent research grant support from NIH or another source

TADA Outcomes: Meetings and Webinars

▶ Annual TADA Trainee Meetings

- ◆ FY 2021 – 2022 Virtual Meeting
- ◆ FY 2023 – Held at NIH
- ◆ FY 2024 – At California awardee site

▶ Trainee webinars (selected examples)

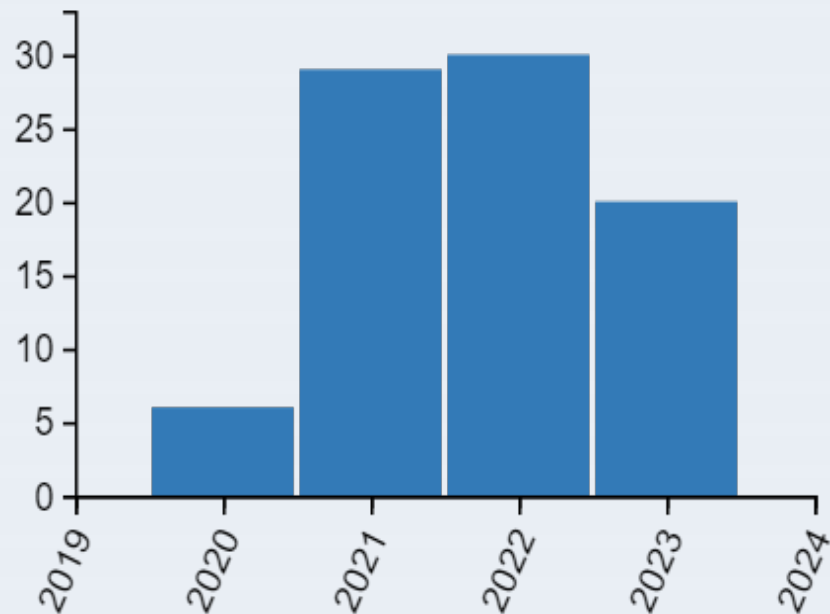
- ◆ Analyzing Complex Behavioral, Social and Population Health Data for COVID-19
- ◆ Avoiding the Pitfalls of Selection Bias
- ◆ Translating Domain Knowledge into Mechanistic Process Models



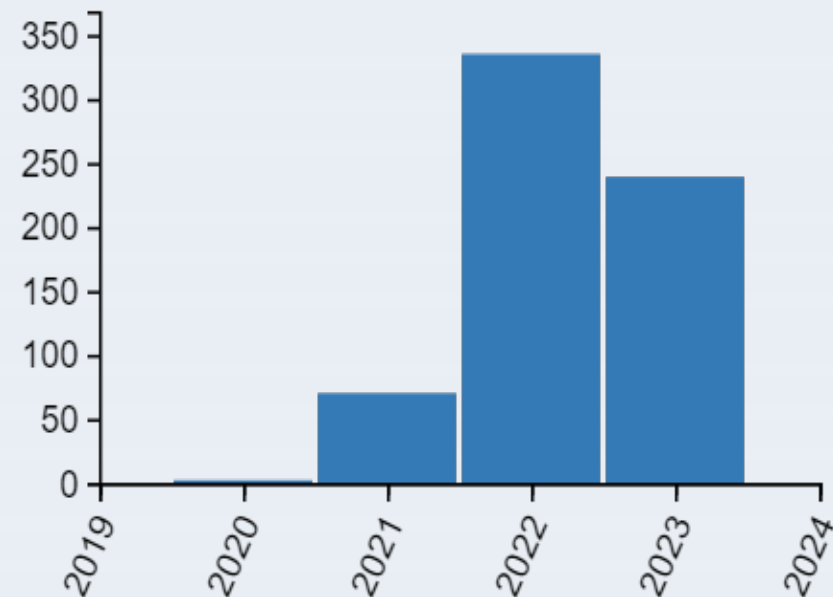
TADA Outcomes - Scientific Publications

There have been 85 publications across the sites to date

Pubs by Year



Total Citations by Year Cited



Top 5 most cited TADA publications

Title	Journal	RCR	Total Citations
Assessment of the Frequency and Variety of Persistent Symptoms Among Patients With COVID-19: A Systematic Review.	JAMA Netw Open	43.94	277
Safety and Efficacy of Telehealth Medication Abortions in the US During the COVID-19 Pandemic.	JAMA Netw Open	7.77	29
Clarifying causal mediation analysis for the applied researcher: Defining effects based on what we want to learn.	Psychol Methods	5.37	41
Birth hospital and racial and ethnic differences in severe maternal morbidity in the state of California.	Am J Obstet Gynecol	5.28	23
COVID-19 Incidence and Mortality in Federal and State Prisons Compared With the US Population, April 5, 2020, to April 3, 2021.	JAMA	3.99	29

Moving Forward - Innovations

▶ Diversity Supplements

- ◆ Ensuring diversity of backgrounds in both mentoring and accepting new students

▶ Collection and collation of all curriculum syllabi

- ◆ Preparation of “best practices and recommendations” publication

▶ Program evaluation/metrics

- ◆ TADA sites included internal evaluation metrics for their programs, to be assessed upon completion
- ◆ TADA alumni continued their careers and/or postdoctoral fellowships in the areas of demography, sociology, and population health

Selected Trainee Success Stories

- Trainee **accepted a postdoctoral position** with Portland State University and Oregon's state demographer to continue to develop statistical and data science tools for small area population forecasts.
- Trainee **accepted two positions** - first a **postdoctoral position** at Rice University and then a **faculty position** at the University of Illinois at Chicago in the Department of Sociology.
- Trainee **received a Population Health Initiative fellowship** from the University of Washington to continue their research on demographic forecasts, especially accounting for migration dynamics.



Alumni Success and Thoughts Monica De La Cruz, UC Berkley

How did the training program prepare you for what you are doing next?

The training program gave me the skillset to use data science methods in my own research. One large part of my dissertation will use topic modeling, a natural language processing technique, that I learned directly from the data science course and internship.



Alumni Success and Thoughts Jessie Harney, UC Berkley

What did you learn while you were in the program (scientifically, professionally, etc.)?

Participating in the program really helped bolster my programming skills, particularly in Python, as well as my self-efficacy.

I loved being a part of a wonderful cohort who I could learn from and with.

In Summary

► Why renew TADA?

- ◆ Investing in tomorrow's methodologists to advance health-related BSSR is a scientific priority for OBSSR and the NIH
- ◆ OBSSR is in a unique position to support this NIH-wide effort in training pre-docs
- ◆ Modest investment with big programmatic goals to change both the data used and the methodologies applied in pursuing health-related BSSR questions
- ◆ This is an opportunity to ensure a strong cadre of methodologists who will contribute to the scientific literature
- ◆ The program was launched knowing how crucial it will be to invest in this cohort for more than one funding cycle

► What did we learn?

- ◆ Dedicated long-term investment in pre-doctoral methods and data training is important to advance BSSR



Concept Clearance

Requesting continued support for the *Predoctoral Training in Advanced Data Analytics for Behavioral and Social Sciences Research (BSSR) - Institutional Research Training Program (Mechanism T32)* via the reissue of this RFA.

