

Building a Training Program to Diversify the Academy in Alzheimer's Disease Research: Lessons Learned about Training and Mentorship



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Presentation Outline

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Responding to the Call: Building a Training Program to Diversify the Academy in Alzheimer's Disease Research

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Journal of Applied Gerontology

Reflections on Mentorship From Scientists and Mentors in an Alzheimer's Disease Focused Research Training Program

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Racial Disparities in ADRD

- Alzheimer's disease and related dementias (ADRD) have risen to the forefront of the United States (U.S.) public health agenda due to their tremendous human and financial burden
- 45% of non-White U.S. population will be age 65 or older by 2060
- ADRD population projected to increase to about 14 million adults by 2050
- Disproportionate burden of ADRD among racially minoritized communities
 - 1.5 times higher in older Blacks than older Whites
 - ADRD deaths among Blacks increased by 99.4% from 1999 to 2004, compared to the 52.6% increase among Whites over the same time period
 - African Americans are at notably higher risk of an ADRD diagnosis than are non-Hispanic whites. At ages 65 and older, for example, African American South Carolinians are 45% more likely to have ADRD as are non-Hispanic Whites.

The Need to Enhance Research Infrastructure

- In 2019, Brewster et al. published a report describing the research priorities that emerged from the National Institute on Aging (NIA)-funded UC Davis Aging and Diversity Conference
 - prioritizing the study of racial/ethnic disparities is essential for achieving equity in healthy aging and dementia care
 - addressing the systems and infrastructure that foster research in aging disparities are important steps toward achieving this equity
- NIA ADRD Implementation Milestone: *To improve and increase training, including for individuals who are members of under-represented populations, and of different career levels of scholars who conduct health disparities research in AD/ADRD*

Opportunities to Enhance Research Infrastructure

- Training programs that increase racially minoritized scholars' aging and ADRD research opportunities are critically important.
- However, noted barriers to these opportunities include:

• Inequities in training	• Implicit bias
• Disparities in grant support	• Isolation
• Inadequate program support	• Negative stereotypes about minoritized groups
• Limited integration into scientific communities	• Substantial teaching/service loads

- A systematic review of mentoring programs for minoritized faculty in academic medical centers concluded that a lack of mentoring is an important factor in explaining lower rates of success with R01 funding and promotion among minoritized faculty (Beech et al., 2013).

Why Focus on URM Scholars?

URM faculty represented only 24% of all faculty at post-secondary institutions in 2017 (Davis and Fry, 2019).

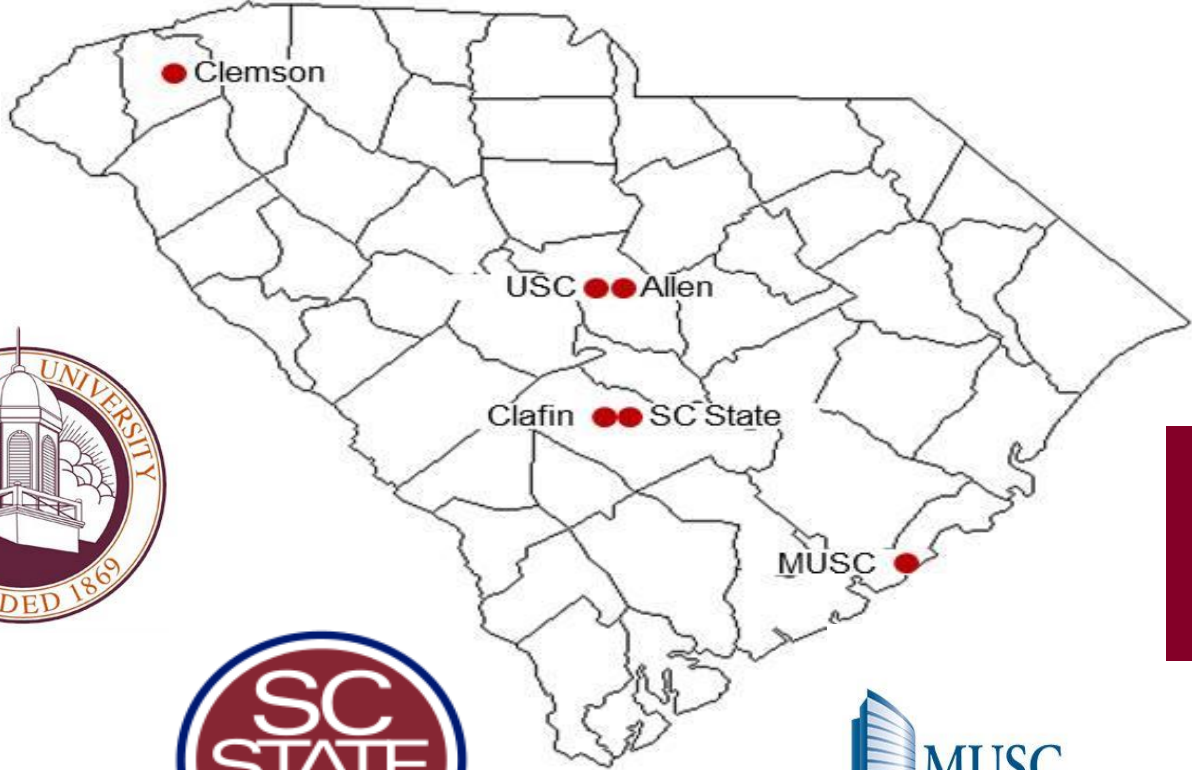
78.1% of full-time (tenured, tenure track, and not on tenure track) faculty members at South Carolina public universities are White (Davis and Fry, 2019).

Black researchers were 10% less likely to be awarded R01s compared to Whites (Ginther et al., 2011)

About the Carolina Center on Alzheimer's Disease and Minority Research (CCADMR)

- Submitted grant proposal in July 2017
- **Funded in September 2018**
- We are an AD-RCMAR = Alzheimer's-disease focused Resource Center for Minority and Aging Research
- **Our Center is one of 18 RCMARs funded by the National Institute on Aging**
 - 1 coordinating center
 - 10 general RCMARs
 - 8 Alzheimer's focused RCMARs (we are one of these!)
- **Mission of the CCADMR:** to increase the diversity of the research workforce focused on population health and sociocultural, behavioral, and environmental determinants of ADRD

CCADMR Team



Center Structure

Analysis Core
Hardin, Adams, and Miller

Administrative Core
Levkoff and Friedman
McCollum (Coordinator)

**Research Education
Component**
Ford and Ingram

Pilot Projects

Health Disparities and
Minority Aging Research
Education Program

Mentorship

Training: Funding Pilot Projects

The mission of the CCADMR is to increase the diversity of the research workforce focused on ***population health and sociocultural, behavioral, and environmental determinants of Alzheimer's Disease and Related Dementias (ADRD) health disparities*** through sustained infrastructure that will ***support underrepresented and racial/ethnic minority faculty (i.e., those from educationally or economically disadvantaged backgrounds and racial and ethnic minorities)***.

Application Requirements

- Projects should focus on the sociocultural, behavioral, and environmental determinants of ADRD health disparities.
- Three-page research plan
- A letter of support from a faculty colleague from the applicant's home institution who is familiar with the applicant's research
- Detailed budget and justification
- Maximum period of award: 12 months at \$30,000

Application Review Criteria

- Each reviewer scores the assigned proposal based on review criteria using an NIH format and scoring criteria.
- Reviewers meet in an NIH-style study section virtual meeting to discuss their critiques of each proposal.
- Top-ranked proposals are recommended for funding and submitted to NIA for their final review and approval.
- Critiques sent to both funded and unfunded applicants.

CAROLINA CENTER ON ALZHEIMER'S DISEASE AND MINORITY RESEARCH (CCADMR)

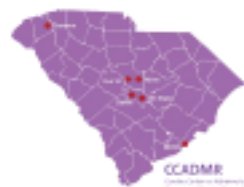
Request for Pilot Research Proposals

Announcement Release Date: November 1, 2021

Application Receipt Date: February 15, 2022

Award Period: Summer/Early Fall 2022—June 30, 2023

The mission of the CCADMR is to increase the diversity of the research workforce focused on population health and sociocultural, behavioral, and environmental determinants of Alzheimer's Disease and Related Dementias (ADRD) health disparities through sustained infrastructure that will support underrepresented and racial/ethnic minority faculty (i.e., those from educationally or economically disadvantaged backgrounds and racial and ethnic minorities).



Funds Available: Up to \$30,000 in total costs per pilot grant will be awarded.

Eligibility Criteria: Eligible applicants include—

1. Postdoctoral fellows, junior faculty, or mid-career faculty who are transitioning to ADRD research using population-based methods. Eligible persons must have a terminal degree.
2. Primary investigators must have appointments at Allen University (Allen), Claflin University (Claflin), Clemson University (Clemson), the Medical University of South Carolina (MUSC), South Carolina State University (SCSU), or the University of South Carolina (UofSC).
3. Investigations using primary data collection, secondary datasets, or mixed methods approaches are invited. Projects should focus on the sociocultural, behavioral, and environmental determinants of ADRD health disparities. If using secondary data, one (or more) of the following datasets is **strongly recommended**: the SC Alzheimer's Disease Registry, the Health and Retirement Study (HRS), or the Behavioral Risk Factor and Surveillance System (BRFSS).
4. Interested applicants **must** communicate with a member of the CCADMR Analysis Core before submitting an application.

Selection Criteria: Applications will be reviewed and scored based on the following criteria—

1. Quality of the proposed research—does the proposal have a strong ADRD health disparities focus? Does the proposal address an important ADRD disparities challenge, and if successful, will the findings have an impact on human health?
2. Relatedness of proposed research to the CCADMR mission—does the proposed research focus on population health and sociocultural, behavioral, and environmental determinants of ADRD disparities to enhance the health and well-being of minority elders?
3. Likelihood that the proposed research will lead to further scholarly activity related to ADRD health disparities and subsequent National Institute on Aging (NIA)-funded projects.

Application Procedure: A full application will include—

1. Using NIH PHS-398 forms, submit the following:
 - a. Face page (with signature of authorized institutional official)
 - b. Description of the project/performance sites/senior key personnel
 - c. Detailed budget and justification
 - d. Biographical sketch
 - e. Resources
 - f. Research plan (see required sections described below)
2. The research plan (maximum 3 pages) should include:
 - a. Specific aims—a statement of the objectives of the project
 - b. Research strategy—a description of the rationale for the research; to include the following sections:
 - i. Significance—describe the importance of the hypothesis to the field of ADRD health disparities; is there a strong scientific premise for the project?
 - ii. Innovation—describe how the research may be new and unique, e.g., explores new scientific avenues, has a novel hypothesis, or creates new knowledge.
 - iii. Approach—Describe the overall strategy, methodology, and analyses to be used to accomplish the specific aims of the project. Include how the data will be collected, analyzed, and interpreted, as well as potential problems, alternative strategies, and benchmarks for success anticipated to achieve the aims.
 - c. One paragraph should be devoted to discussing how the proposed research will support the applicant's career, help to bridge funds, and/or expand the applicant's research into a new area.
 - d. Proposal should be single-spaced with margins not less than one-half inch, using a font size not less than 11 pt.
3. A letter of support from a home institution faculty colleague familiar with the applicant's research.
4. Applicants who are re-submitting a proposal are required to provide a 1-page response to reviewers and the reviewer comments.

Please note that each institution may have different grant application routing policies and procedures. For example, applicants should check with their institution for details about how to obtain signatures of authorized institutional officials.

Budget:

Allowable Costs

- Salary and fringe benefits of project research personnel including undergraduate and graduate students, post-doctoral fellows, and technicians (e.g., non-faculty statisticians)
- Salary and fringe may be included for the PI if used directly to work on this project
- Capital equipment (article of non-expendable, tangible property having a useful life of more than one year and an acquisition, or valuation cost of at least \$5,000)
- Project supplies
- Travel: essential to conduct project activities or to professional meetings (justification must be provided)
- Student tuition
- Indirect cost rate is 8%

Training: Funding Pilot Projects (con't)

- 15 pilot project proposals (three per grant year) have been funded
- 73% of Scientists are female, 40% are Asian, 33% are Black, 20% are White, 7% are Latinx
- Brief written progress reports from the pilot project principal investigators are required quarterly.
- Project updates are given during the project year (seminar style)
- Primary requirement: Manuscript submission at the end of the 1 year project period.

Training: Health Disparities and Minority Aging Research Seminar Series

- Focus on ADRD health disparities, aging among racially minoritized groups, cognitive aging, population-based data, and professional development
- Seminars were originally offered monthly in both live and virtual formats
- In March 2020, we were able to successfully transition to live streaming only due to the COVID-19 pandemic
- When live seminars were held, the majority were at the University of South Carolina
- All seminars are recorded and archived on the Center website for later viewing

Training: Health Disparities and Minority Aging Research Seminar Series (con't)

Attendance for Educational Programming

Type of Session	# of Sessions Offered	Total # of Attendees
Scientific Content	10	168
<i>Topics include: Social Determinants of Health in Aging Research; Interdisciplinary Approaches to Geriatric Care and the Analysis of Relevant Data</i>		
Professional Development	8	233
<i>Topics include: How to Write a Data Analysis Section; Research Collaborations: Tips, Tactics, and Tales</i>		
Data Training	5	132
<i>Topics include: Introduction to the south Carolina Alzheimer's Registry and the Health and Retirement Study; Regional Alzheimer's Registries</i>		
Total	23	533

Mentorship Approach

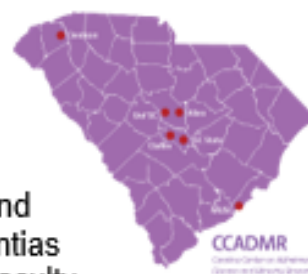
- Promulgating a supportive environment through mentorship can help to propel professional trajectories
- Each Scientist is assigned three Mentors
 - Potential Mentors are selected based on the proposed work of the Scientist to enhance their aging, ADRD, methodological, and health disparities knowledge base
 - Mentoring teams are interdisciplinary, with at least one mentor having research experience in the social and behavioral aspects of ADRD
 - Other mentors have expertise in methods/analysis or another subject area relevant to the Scientists' proposed work

Mentorship Procedures

- Potential Mentors are mid-career/senior faculty from the partner institutions
- Leadership provides the prospective Mentors with information describing mentorship responsibilities and expectations
- Mentors are asked to complete a Mentorship Agreement outlining their role and responsibilities as part of the mentorship team
- Center leadership meets with Scientists and Mentors separately, in order to better assess the Scientist-Mentor relationship, provide suggestions for additional support, and/or determine opportunities to enhance the relationship
- An external evaluator interviews each Scientist and Mentor to learn about their experiences with the goal of improving overall Center processes

CCADMR PROGRAM MENTOR AGREEMENT

The mission of the CCADMR is to increase the diversity of the research workforce focused on population health and sociocultural, behavioral, and environmental determinants of Alzheimer's Disease and Related Dementias (ADRD) disparities. One of the ways that we aim to do this is to match faculty and/or post-doctoral research scholars (referred to as CCADMR Scientists) with a team of three experts (referred to as CCADMR Mentors) in the aging, ADRD, and health disparities fields based on the Scientists' areas of interest. You are invited to serve as a mentor for one of our CCADMR Scientists for the current funding cycle.



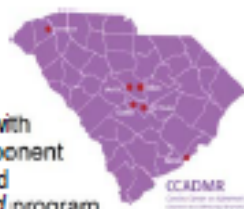
As a CCADMR mentor, you are expected to:

- Guide your Scientist on the development and implementation of their career development plan
- Participate in regular meetings with your Scientist to help inform their project and provide guidance as needed
- Participate in *quarterly* meetings with CCADMR leadership to discuss Scientist progress

In addition to the above, the Center hosts monthly seminars about health disparities in minority aging research. Your presence at these meetings will also facilitate learning and mentorship of Scientists throughout their tenure with the CCADMR. We ask that at least one member of the Scientist's Mentor team attend each seminar.

I understand that these are the expectations of me as a CCADMR Mentor. If I feel that I am unable to fulfill these expectations, I will communicate with the CCADMR leadership to devise an alternative plan to support my CCADMR Scientist.

CCADMR PROGRAM SCIENTIST MILESTONES AND EXPECTATIONS



After acceptance to the CCADMR Program, an orientation meeting will be scheduled with incoming Scientists, their mentors, and CCADMR Program Research Education Component (REC) leadership to provide information about milestones, requirements, timelines, and expectations. We recognize that each CCADMR Scientist has their own individualized program and timeline; however, the CCADMR Program tracks specific program milestones. Details about these milestones are provided below.

Milestone 1: Proposal Revisions. Satisfactory response to CCADMR leadership requests for revisions of research proposal, budget, and/or submission of protection of human subjects' protocols (if applicable) is required prior to the start of the funding year.

Milestone 2: Career Individual Development Plan. The CCADMR Scientist, with guidance from mentors, will develop and submit an individual career development plan to the CCADMR leadership. Through this process, the leadership team will identify objectives that will help the CCADMR Scientist achieve their long term career goals, devise strategies to accomplish these objectives, develop a timeline for when the strategies will be employed, and define the outcome measures that will be used to determine if each objective has been achieved. The development plan will be reviewed at the beginning and end of the pilot project funding period.

Milestone 3: Progress Reports. The CCADMR Scientist will submit information requested to comply with CCADMR Program and National Institute on Aging (NIA) progress reports. CCADMR Program progress reports will be initiated at the start of the funding period with updates due quarterly. The reports will document productivity as it relates to the CCADMR pilot project, conference abstract/manuscript/grant proposal submissions, and attendance at relevant seminars and conferences. The NIA progress report is due annually. Additional information may be requested about project progress and research productivity to comply with NIA guidelines.

Milestone 4: Meetings, Presentations, and Workshops. CCADMR Scientists are expected to participate (either in person or remotely) in monthly CCADMR seminars to be held on designated Fridays, 12-2pm (schedule for the year will be provided). Scientists are also expected to present their research progress and findings at seminars at least twice during the grant period. Additionally, Scientists are expected to participate in quarterly CCADMR Scientist meetings and to stay in contact with their mentors and CCADMR REC leadership throughout their year of program funding, as well as with the CCADMR evaluation team for up to five years post pilot funding. A REC Calendar will be provided with more detailed dates for required meetings.

Milestone 5: Manuscript Submission. An important marker of success in the CCADMR program is the publication of peer-reviewed articles on project-funded research. At the conclusion of the pilot grant year, Scientists are expected to produce and submit a manuscript to a peer-review journal based on the work conducted as part of the CCADMR program.

I understand that if I do not adhere to these expectations, the CCADMR leadership, in consultation with the CCADMR Scientist-Mentor team, reserves the right to rescind any remaining funds and commitments associated with the CCADMR pilot grant program.



South Carolina

Mentorship Evaluation Plan

- Implemented a digital tracking system to track the scientists' productivity quarterly
- Qualitative interviews with Scientists and Mentors
 - Reflections on Mentorship From Scientists and Mentors in an Alzheimer's Disease Focused Research Training Program (Johnson, C.L., et al., 2022).
 - Midcourse Evaluation
 - Data were collected between Fall 2020 – Spring 2021
 - Purposive sample of participants were asked to complete a 3-item survey about (a) self-reported race and ethnicity, (b) academic rank, and (c) career successes from participating in the CCADMR program.
 - Scientists were asked a total of 25 questions. Question topics related to their perceptions about the program, their project experience, the relationship with their mentors, and their career development.
 - Mentors were asked 10 questions that explored their perceptions regarding their scientist's scholarship development and progression, goals as a mentor, and reflections on the center's goals to enhance scientists' involvement in ADRD research.
 - A total of 19 mentors and 12 scientists were contacted to participate; 5 mentors and 6 scientists participated in the evaluation.

National Center Of Leadership In Academic Medicine Faculty Development Model (Daley Et Al., 2011).

- Model was developed from a survey that was administered to junior faculty that asked them to:
 - identify the top 3 factors they attributed to their career success (open ended)
 - describe the role of mentoring in their career success (open ended)
 - select the top 3 NCLAM components that have most impacted their career trajectory (forced choice)

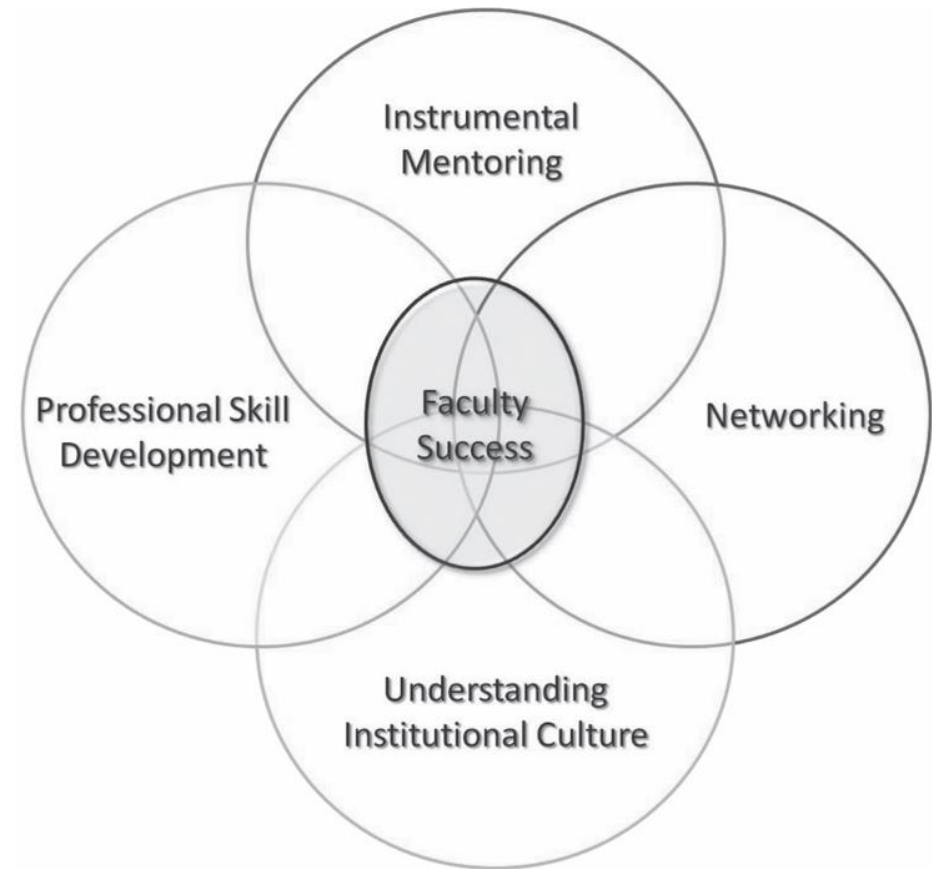


Table 1. Scientists' reported milestones/accomplishments from participating in the CCADMR training program^a.

Number of Scientists	Milestones/Accomplishments
3	Promoted with tenure to associate professor
3	Making steady progress on their project manuscript and have identified funding for which they will apply that will build on this work
2	Published manuscripts on their projects in journals including <i>Frontiers in Public Health</i> and <i>The Journals of Gerontology</i>
1	Named chair of their department
1	Served on a RCMAR panel at a national scientific meeting that highlighted their pilot project
1	Presented research at a national aging meeting
1	Secured extramural funding for research and development

^aThis list reflects milestones/accomplishments of interview participants. A total of 42 publications were reported from all scientists in the training program.

Perspectives From Scientists

- **Challenges With Obtaining Data, Time Management, and Analysis**

- *“I had challenges with obtaining data, So, actually even up until today, I haven’t received the data that I proposed in the beginning. But one of my mentors had suggested that I look at the Alzheimer’s disease registry data to see if I could do some preliminary analysis”.*

- **Seminars for Building Academic Skills**

- *“I had a pilot project and my part has ended, but I’m still participating in some of the monthly educational seminars that they have and whatever events they have... ”*

- **Working and Communicating With Mentors**

- *“[They’d] say, “Oh, you know, good job. And next time let’s talk about this, this, and this.” It was helpful to get communication from the mentors, because even though I could do things on my own it felt good to be supported and that they wanted me to succeed”.*

- **Additional Themes:**

- Career Development
- Project Experience and Professional Development

Perspectives From Mentors

- Experiences Interacting With Scientists

- *“We didn’t have a lot of mentoring team meetings in the first year as much as we’re having now, but if you’re not in regular communication then if something changes for a project and then you’re caught off guard, nobody should be in that position where a mentor is caught off guard by something, and/or a mentee sees that there’s a reaction because they haven’t been in touch”.*

- Recruitment and Involvement of Underrepresented Minorities

- *“We are putting extra work on people who are already burdened and busy, and have the responsibilities that they already have... I think the overburdened piece is also, .. something that has come up ... it’s something that we need to think about”.*

- Perspectives on Scientists’ Challenges

- *“...with our HBCU partners there’s such a high teaching load expectation with respect to teaching it’s harder for them to get out the research deliverables”.*

- Additional theme:

- Ideas for Effective Mentoring
- CCADMR Programmatic Qualities

Summary of Findings

- This was a midcourse evaluation with the goal of improving and modifying the CCADMR based on the current experiences of mentors and scientists.
- Additional evaluations will be conducted to assess career trajectories and successes over time.
- Findings suggest it may be beneficial to expand the program length beyond one year as much time can be spent waiting for data use approval.
- The CCADMR team will use results to enhance the training experience for future grant years.

Conclusion

- The research workforce in ADRD research includes insufficient representation of investigators from diverse racial and ethnic backgrounds.
- We present key components of a research training program designed to address this problem of underrepresentation.
- While the evaluation of program outcomes is ongoing, we believe that the key program elements highlighted today (training and mentorship) will contribute to long-lasting improvements in the diversity of the aging research workforce.
- Our experience may be a practical resource for others developing interdisciplinary training programs to increase the pipeline of underrepresented scholars conducting ADRD research.

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