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Abstract

To address critical health equity issues facing racially and ethnically diverse populations, it is essential to have researchers from similarly diverse backgrounds. Such researchers provide different perspectives that may lead to distinct research questions, novel interpretation of findings, and innovative recommendations for health promotion practice. There is a continuing need to increase the number of researchers leading health research studies who are from underrepresented minority populations (URMs). The literature demonstrates the effectiveness of mentoring for career development and the need to hone existing mentoring models. The TREE Center developed an innovative model for building capacity among early stage investigators, with a focus on URMs, to increase the inclusivity of the research pipeline. Our model involves community-engaged behavioral health research mentoring, career development, training for grantspersonship, and guidance for manuscript development and submission. A pilot project program provided opportunities for 10 early stage investigators to develop relationships with public health practitioners and other community partners, to obtain funding, to manage a complex pilot research project, and to generate preliminary data. Awardees worked with an academic mentor, a community mentor, and TREE Center faculty to conduct and disseminate their research. Lessons learned include the need to account for funding cycle timing, address challenges of recruiting URMs, consider overutilization of senior URM mentors, and overcome institutional bureaucracies that hinder transdisciplinary research across campuses. We discuss strategies for addressing these challenges. Our model is replicable and could be implemented, especially by academic programs interested in cultivating early stage URM investigators to conduct behavioral health research.

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THE CHALLENGE OF INCLUSIVITY IN THE RESEARCH PIPELINE

To address critical health equity issues facing racially and ethnically diverse populations, it is essential to have researchers from diverse backgrounds. Such researchers provide different perspectives that may lead to distinct research questions, novel interpretation of findings, and innovative recommendations for health promotion practice. However, there is a continuing lack of diversity among health researchers (Tabak & Collins, 2011) that diminishes the quality of the research itself (Stoff et al., 2009). To address this problem and to create a robust cohort of underrepresented minority (URM) investigators with the skills and experience to initiate and lead health research, there is a need to develop pipeline strategies to increase the number of URM early stage investigators. Early stage investigator is a term used by the National Institutes of Health, and includes postdoctoral scholars and junior faculty (National Institutes of Health, 2017).

Mentoring has been identified as a key factor for URM junior faculty to successfully advance in an academic research career (Campbell et al., 2013). The literature demonstrates both the effectiveness of mentoring, and the need to hone existing models for implementing effective mentoring in everyday practice (Gandhi & Johnson, 2016). However, early stage URM investigators face unique challenges. For example, they may not have been exposed to URM researchers as role models, and the history of exploitation of marginalized populations by researchers can make a career in health research unappealing. In response, together with our colleagues, we established the Transdisciplinary Research, Equity and Engagement Center for Advancing Behavioral Health (TREE Center) and are implementing an innovative model for building capacity among early stage investigators, with a focus on URMs, to increase the inclusivity of the research pipeline. The TREE Center model involves research mentoring, career development, training for grantspersonship, and guidance for manuscript development and publication—components that have been widely discussed in the literature (Rice et al., 2017). We also require the involvement of both an academic and a community mentor, and we connect early stage investigators with public health practitioners and other community partners as needed. Furthermore, we provide the opportunity to obtain funding, manage a research project, and generate preliminary data. The literature has not paid sufficient attention to these additional components of a mentorship model.

Growing the pool of diverse health researchers is vital not only for producing high-quality science but also for advancing health equity. Our work contributes to the health promotion literature by describing implementation of a mentoring model that supports the career development of early stage investigators, particularly URMs, who collaborate with public health practitioners and other community partners to study interventions that promote mental and behavioral health.

THE TREE CENTER

The TREE Center fosters transdisciplinary, community-engaged, team science that focuses on the social determinants of behavioral health, including adverse childhood experiences, historical trauma, and the intersectional effects of poverty and discrimination, with the goal of improving behavioral health conditions and outcomes including youth suicide, substance

misuse, mental health disorders, and access to behavioral health care. Challenges for conducting behavioral health research include translating existing efficacy-focused and evidence-based interventions for widespread implementation in a sustainable way in diverse settings with populations experiencing health disparities; assuring that interventions are community-centered and founded on cultural beliefs, knowledge, and practices; and, creating multilevel interventions to address the complex nature of behavioral health disparities. The goals of the TREE Center are to (1) promote multilevel intervention research that will advance the knowledge and science to improve behavioral health outcomes, (2) conduct research that improves behavioral health outcomes for socioeconomically disadvantaged and underserved rural populations in the state, (3) expand the development of a diverse scientific workforce by training URM early stage investigators, and (4) cultivate equitable research collaborations with community and tribal stakeholders.

THE TREE PILOT RESEARCH PROJECT PROGRAM

A core strategy for reaching the TREE Center's goals is the Pilot Research Project Program (Pilot Program) led by the TREE Center's Investigator Development Core (IDC). The IDC leadership promotes the Pilot Program and encourages early stage investigators, particularly URMs, to apply. It is a competitive process where successful applicants are awarded up to $50,000 to conduct their research as principal investigators (PIs). In partnership with both a community mentor and an academic mentor, PIs are required to develop a research intervention that addresses a behavioral health disparity. Funding for the academic and community mentors must be included in the proposal budgets. Working with their academic and community mentors, the PIs must also develop mentoring plans that include frequency and type of contact and mentorship goals. IDC leadership works with potential applicants to identify mentors within academia and the community.

The TREE Center also provides pilot project PIs with opportunities to network with senior scholars, public health practitioners and other community partners. The TREE Center provides training in foundational concepts (e.g., community-engaged research methods) and hosts bimonthly research roundtables that include practical grant management skills (e.g., budget development), professional development focused on TREE Center priorities (e.g., historical trauma, intersectionality), and group discussions regarding next steps following completion of the pilot projects (e.g., dissemination of results, translation of research to practice and policy). TREE Center leadership also mentors pilot project PIs individually as they address challenges relevant to their projects on topics including research design, creating memoranda of understanding, revising budgets, and engaging community in research.

Through this Pilot Program, the IDC works to nurture a strong cadre of URM researchers who are primed with the skills, community partnerships, and preliminary data needed to address behavioral health disparities. In this article, we share results of the first 3 years or the Pilot Program.

SUCCESSES

The TREE Center has experienced early success in building the research pipeline by increasing the number of early stage investigators conducting behavioral health disparities research in partnership with public health practitioners and other community partners. The TREE Center has funded 10 pilot projects: three in Y1, five in Y2 and two in Y3 (Table 1). Pilot project PIs represent diverse identities: six are female, five are Hispanic/Latinx, one is Native American, and one is a sexual minority. Funding amounts for projects ranged from $11,250 to $50,000. Projects focus on mental and behavioral health disparities and ways to address them and are located in both urban and rural settings. Additionally, pilot project PIs were all able to engage with community partners to conduct the research and disseminate results. Community partners included nonprofit organizations focused on promoting parity in access to mental health services, reducing stress associated with immigration and discrimination, providing mental and behavioral health services, and promoting well-being among transgender individuals. Additional partners include community coalitions focused on promoting mental health and well-being and addressing issues of historical trauma and colonization.

Early stage investigators in the Y1 cohort have already achieved successful outcomes. All pilot project PIs were able to initiate and manage their studies. One URM PI successfully applied to and completed the summer National Institutes of Health research boot camp for young investigators. Another published a book chapter discussing her pilot research outcomes and was offered a tenure-track position based, in part, on her successful pilot project (deMaria & Rael, 2019). All three Y1 PIs have presented their results to the TREE Center and community partners and continue to engage with their community partners to further efforts to address health disparities in innovative ways. The PIs are also collaborating with their community partners on manuscripts and are exploring options for grant submissions based on their pilot research findings. As the Y2 pilot projects complete their work, and the Y3 pilot projects get underway, we continue our mentorship model and anticipate similar successful outcomes.

Requiring both an academic and community mentor was a deliberate decision to assist early stage investigators as they navigate the different worlds and challenges in conducting research from both the academic and community perspectives. The bimonthly research roundtables encourage idea sharing and offer opportunities for individual PIs to consult with seasoned researchers, including mentoring from IDC leadership and presenters. The small group setting provides a safe environment for nurturing professional development, discussing challenges, and problem solving.

Finally, an unanticipated success has been the ability to bring together a diverse group of faculty members from different disciplines in one university with two campuses—a liberal arts main campus and a health sciences center campus—that typically have limited interaction. Despite the administrative challenges of linking two campuses, the TREE Center faculty have worked diligently to build and sustain relationships with an overarching focus on research that will improve behavioral health equity in the state. The diversity, by demographics and disciplines, of the pilot project PIs provides evidence of transdisciplinary

success. An example of the benefits of creating this cross-campus support is the availability of supplemental funding from the main campus research office to augment available funding for the pilot projects.

CHALLENGES AND LESSONS LEARNED

The Pilot Program process, while challenging, provided numerous opportunities for identifying issues and developing collaborative solutions. For example, one challenge is the limited number of URM mentors. Our strategy is to actively identify, engage, and recruit potential mentors. There is benefit of involving URM faculty mentors in this process, but we recognize that because of the lack of diversity among faculty, many URM faculty may be overextended in their mentorship responsibilities. Research has shown that a good mentor does not need to identify as URM to provide high-quality, supportive mentorship to new URM investigators, as long as there is agreement with regard to deep-level values, interpersonal comfort is established, and commitment to the relationship exists (Ortiz-Walters & Gilson, 2005). Table 2 summarizes additional challenges, strategies used, and lessons learned in developing and offering the Pilot Program. By continually assessing the process, and welcoming input from community partners, applicants, awardees, colleagues, and senior advisors, we have been able to improve the Pilot Program each year.

NEXT STEPS

The IDC will continue to improve the Pilot Program based on lessons learned throughout the process. We will maintain engagement with each cohort of PIs following completion of their pilot research, with a focus on dissemination of findings and translation of research into practice and policy. We will provide access to grant and manuscript reviewers, and access to subject matter experts as early stage investigators work with communities to develop larger research projects from their pilot data. We will use the research roundtables to provide constructive feedback and will continue to connect prospective early stage investigators to community partners with research questions of interest. We will also endeavor to address systems challenges that may discourage or alienate potential applicants, especially URMs, from pursuing a career in community-engaged behavioral health equity research. Last, we will continue to seek funding to increase diversity among those conducting research that provides the evidence to support health promotion practice and health equity.

IMPLICATIONS FOR PRACTICE AND POLICY

The TREE Center mentoring model is creating a robust team of well-trained, early stage URM and non-URM investigators who will have the skills to lead research endeavors as we move into the future. They will advance behavioral health equity by developing innovative ways of understanding and addressing health disparities, historical trauma, adverse childhood experiences, and the intersectional effects of poverty and discrimination in partnership with community health practitioners. In New Mexico, a state where nearly half of the population is Hispanic and more than 10% are American Indian (United States Census Bureau, 2019), it is essential to have diverse researchers who work within those communities and collaboratively develop strategies that are feasible and practical for health

promotion practitioners to employ. Our work to strengthen and expand the research pipeline by providing opportunities for URM and non-URM early stage investigators to identify community partners, obtain funding, conduct research, and develop a broad spectrum of research skills contributes to these efforts. By increasing the number of URM researchers, we may also reach a critical mass where students, pre- and postdoctoral scholars, and junior faculty will see themselves reflected in their professors and mentors, and will be encouraged and influenced to pursue a career in community-engaged health research.

Acknowledgments

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TABLE 1

Early Stage Principal Investigator's URM Status, Pilot Project Title, and Funding Amount

Funding Year	URM Status [a]	Discipline/Campus	Project Title	Amount
1	F, H	Education/main	Shifting narratives for behavioral health justice	$11,250
1	H	Education/main	Hurt people hurt people: Utilizing ethnic studies to heal student trauma by addressing the mind, the body and the spirit	$21,765
1	H	Education/main	UndocuResearch: Mental health among undocumented and mixed status families of New Mexico	$29,925
2	F, H	Medicine/health sciences	Development of a multilevel intervention framework to reduce disparities in unintended teen pregnancy among Hispanic adolescents	$50,000
2	F	Anthropology/health sciences	Designing a culturally appropriate group navigation model to improve mental and emotional health equity for Spanish-speaking Latina women	$50,000
2	F, H	Psychology/main	Providing expanded continuous labor support to pregnant women in New Mexico with substance use disorders	$50,000
2	NA	Education/main	Exploring solutions that address the mental health impact of fracking in Diné communities	$50,000
2	F, H	Political Science/main	Adapting evidence-based knowledge to reduce suicide risk factors in rural communities	$50,000
3	F	Speech and hearing sciences/main	Training early intervention providers to teach naturalistic intervention strategies to parents of children with or at risk for autism spectrum disorder	$49,762
3	SM [b]	Nursing/health sciences	Utilizing gender minority perspectives to describe and operationalize affirming behavioral health outcomes of peer-led support groups for gender minorities in New Mexico	$49,466

NOTE: URM = underrepresented minority populations.

[a] URM status: F = female (females are considered underrepresented in science); H = Hispanic; NA = Native American.

[b] SM = sexual minority (sexual and gender minorities [SGM] are not specified as URM by National Institutes of Health).

TABLE 2

Challenges, Strategies and Lessons Learned From the Development of a Pilot Research Award Process for Early Stage Investigators

Challenges	Strategies for Addressing Challenges	Lessons Learned
Notice of award received 3 months into Year 1	Developed a mini-pilot research project option for Y1 Released Y1 pilot and Y2 pilot RFPs concurrently	Anticipate a shortened Y1 and recognize the need to be flexible and creative
Extended NIH review time	Spoke with the NIH project officer about optimal times for reviewing projects Identified options for no cost extensions Started the proposal process as early as possible	Reach out to project officers early and often and meet in person when possible Advocate on behalf of pilot project awardees
Lack of qualified applications	Conducted active recruitment Challenged TREE Center leadership to identify, encourage, and cultivate applicants Maintained contact with unsuccessful applicants and encouraged them to reapply	Strategize with colleagues on mechanisms for identifying and fostering applicants
Limited experience engaging with community health practitioners	Connected researchers with public health practitioners and facilitated codevelopment of research	Establish an environment where researchers and practitioners interact and colearn together
Lack of grant writing skills	Provided detailed templates for applicants to use as a guide Encouraged applicants to work with mentors to write applications Conducted research roundtables focused on grant writing and critiquing applications	Establish processes that support and encourage new investigators
Insufficient mentoring by mentors postaward	Provided materials and expectations to mentors following awards Actively engaged mentors in the TREE Center and the mentoring process	Delineate mentor expectations at the outset Do not depend on new investigators to engage sufficiently with mentors on their own Contact mentors and remind them of their roles
Limited number of URM mentors	Actively identified, engaged and recruited potential mentors	Anticipate that many URM mentors may be overextended Recognize that mentors do not need to identify as URM to provide high quality, supportive mentorship to new URM investigators
Institutional barriers to working across multiple campus	Learned processes across both campuses (e.g., IRB applications; faculty salary buy-out) Worked with TREE Center leadership to recruit new investigators across both campuses Held meetings on both campuses	Collaborate with individuals at multiple levels of the institution Anticipate differences and establish strong communication across campuses
Multilevel, community-engaged, intervention research is difficult to accomplish in 1-year time frame	Connected potential researchers with communities with established relationships Provided PIs with technical assistance and guidance	Look for opportunities to build on current relationships and work Provide training on concepts of multilevel, community-engaged and intervention research
Time for PIs to devote to pilot research projects	Provided clear information about time commitments and expectations Reminded researchers of obligations	Assist researchers with time management Develop systems to reduce administrative load on PIs Provide new PIs with realistic expectations regarding research
Difficulty integrating pilot research projects into other TREE Center activities	Invited awardees to present on their work at TREE Center meetings Provided awardees with opportunities to network with other TREE Center personnel Invited awardees to attend all TREE Center meetings	Provide value-added activities so that new investigators want to participate and engage Disseminate information on pilot projects to TREE Center members and communities

NOTE: NIH = National Institutes of Health; TREE = Transdisciplinary Research, Equity and Engagement Center; URM = underrepresented minority populations; IRB = institutional review board; PI = principal investigator.