Published in final edited form as:

J Cancer Educ. 2012 June ; 27(3): 409–417. doi:10.1007/s13187-012-0361-0.

Creating a Cadre of Junior Investigators to Address the Challenges of Cancer-Related Health Disparities: Lessons Learned from the Community Networks Program

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Abstract

Community-based participatory research (CBPR) initiatives such as the National Cancer Institute's Community Networks Program (CNP) (2005–2010) often emphasize training of junior investigators from underrepresented backgrounds to address health disparities. From July to October 2010, a convenience sample of 80 participants from the 25 CNP national sites completed our 45-item, web-based survey on the training and mentoring of junior investigators. This study assessed the academic productivity and CBPR-related experiences of the CNP junior investigators (n=37). Those from underrepresented backgrounds reported giving more presentations in non-

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academic settings (9 vs. 4 in last 5 years, $p=0.01$), having more co-authored publications (8 vs. 3 in last 5 years, $p=0.01$), and spending more time on CBPR-related activities than their non-underrepresented counterparts. Regardless of background, junior investigators shared similar levels of satisfaction with their mentors and CBPR experiences. This study provides support for the success of the CNP's training program, especially effort directed at underrepresented investigators.

INTRODUCTION

Public health projects, especially ones involving community-based participatory research (CBPR) approaches, wherein community members and researchers share responsibilities, ownership, and equal involvement in all aspects of the research process [1], tend to be nonlinear and take longer than more traditional discipline-bound research. Furthermore, those projects with an exclusive or heavy focus on health disparities in underrepresented populations [identified by the National Institutes of Health (NIH) as an area of increasing interest] usually require long and delicate processes for building trust and implementing complex data collection procedures, and therefore take longest of all—despite noted value to addressing health disparities [2–5].

Building on foundational federal reports of disparities in health care, organizations such as the NIH and others, have placed increasing emphasis on the importance of health disparities research [6–7]. Repeated accounts of research misconduct and abuse have fostered explicable mistrust of biomedical research, particularly among many underserved communities that are experiencing pervasive disparities in health outcomes [8–9]. The application of CBPR principles to health disparities research emphasizes a collaborative balance of power and ownership that uniquely allows for empowerment and rebuilding of trust [10], which is necessary to initiate meaningful, long-term research in these communities.

The Community Networks Program (CNP), an initiative funded by the National Cancer Institute/NIH's Center to Reduce Cancer Health Disparities (CRCHD) from 2005 to 2010, was designed to reduce health disparities in cancer through the use of CBPR. The CNP was an NCI/NIH (U01) cooperative agreement, consisting of 25 performance sites across the United States. Each site focused on a particular target population: 8 on African Americans; 4 on Hispanics/Latinos; 4 on American Indian/Alaskan Natives; 3 on Native Hawaiian/Pacific Islanders; 2 on Asians; and 4 on other underserved groups (e.g., rural or urban poor). In addition to outreach and research, CNPs were required to train and develop junior investigators, particularly those from NCI-CRCHD designated underrepresented populations, including individuals: of African American, Hispanic, Native American, Alaskan Native, or Hawaiian ancestry; from the US Pacific Islands; having mental or physical disabilities; and from other underrepresented backgrounds (e.g., rural, first-generation college graduate) [11].

Based on the purpose and goals of the CNP, its grantees are uniquely suited to speak on the intersection of CBPR, health disparities, and academic career development of junior investigators from underrepresented backgrounds. For this reason, we conducted a survey of CNP members to explore how they perceived the professional development needs of junior investigators who are dedicated to CBPR as a component essential to eliminating health disparities. For the purposes of this study, we specifically highlighted the responses from junior investigators in the CNPs related to their academic productivity, mentoring experiences, successes, and challenges in using CBPR approaches.

METHODS

Survey Development

From June to July 2010, we used a collaborative and iterative process to develop the questions included in the survey. Members of the South Carolina CNP (TMF, HMB, JRH) developed a baseline survey that was circulated to colleagues in South Carolina and at other CNP sites for additional content and suggestions. The final survey consisted of 45 closed-ended (e.g., multiple choice, rating scales) and open-ended questions: 2 questions on CNP characteristics (regional location, target population); 9 socio-demographic characteristics (e.g., gender, race/ethnicity, mother's/father's educational attainment; employer); 3 questions about academic affiliation characteristics (academic department, title and self-identified status of being senior versus junior investigator); 8 questions on scholarly productivity (e.g., in the past 5 years, number of oral/poster presentations, peer-reviewed publications, grants submitted and funded); and 8 questions about goals, recommendations and future involvement in CBPR (e.g., whether target goals are set for number of manuscripts, grants, or funding; percent time recommended for junior faculty to devote to CBPR activities that do not specify an academic product; likelihood of continuing to engage in CBPR). Skip patterns were embedded in the instrument for respondents who were not employed by an academic institution, so that irrelevant items were not asked of them. Similarly, respondents who reported being a junior investigator or senior faculty were asked only the set of questions pertaining to their respected rank and associated experience. Junior investigators were those respondents who identified as being a junior faculty member (e.g., assistant professor) or other type of trainee (e.g., doctoral student, postdoctoral fellow). Junior investigators were asked 8 questions on their involvement and perceptions of CBPR (e.g., percent time spent on CBPR activities), their rating of mentoring relationships with senior CBPR faculty and rating of the biggest concerns of CBPR faculty. Those who identified as being an established/senior faculty member (e.g., full professor) were asked 7 questions on their involvement and perceptions of CBPR, rating of biggest concerns of CBPR faculty, training needs of CBPR-focused junior faculty, number of manuscripts published with junior faculty (e.g., trainees and/or students in past 5 years). The full survey is available from the first author.

Survey Administration

The study was approved by the Institutional Review Board (IRB) of the University of South Carolina. From July through October 2010, we used Survey Monkey® (Portland, Oregon) to conduct an anonymous, web-based survey of CNP members. We recruited potential respondents by emailing a link to the survey to the Principal Investigators (PI) and Project Coordinators of the 25 CNPs. Each PI or Project Coordinator forwarded the survey to their faculty, students, other trainees, and community partners affiliated with their program. Email reminders were sent in September 2010. Potential respondents who accessed the survey had to indicate consent with a checked box (yes/no) prior to beginning the survey.

Study Sample

A convenience sample of 80 respondents who completed the online survey comprised the total sample. The average age of respondents was 47 years ($SD=10.7$), most were female ($n=61$; 76%), doctorally trained ($n=57$; 71%), working in the academic setting ($n=63$; 79%), and part of an underrepresented group as defined by NIH ($n=52$; 65%). Reporting for the past 5 years, respondents indicated a mean of 6 ($SD=8$) publications as first author and 14 ($SD=25$) as co-author. Academic-based respondents reported more oral/poster presentations ($m=19\pm 28$) than non-academic-based respondents ($m=13\pm 14$). In terms of grants, respondents reported having obtained funding for 8 applications in the last 5 years (average total of \$4.39m).

Analysis

Given NIH/NCI's emphasis on development of scientists from underrepresented groups, we compared respondents by this variable—first the total sample, and then the junior investigators. As noted above, these include individuals: of African American, Hispanic, Native American, Alaskan Native, or Hawaiian ancestry; from the US Pacific Islands; having mental or physical disabilities; and from other underrepresented backgrounds (e.g., rural, first-generation college graduate). First-generation graduate status was determined if the respondent reported a bachelors degree or higher AND that both his/her parents' highest educational attainment was an associate degree or less. Because of the emphasis on training future scientists to address cancer-related health disparities, we focused analyses on junior investigators.

All quantitative analyses were conducted in SAS® version 9.2 (Cary, NC). We conducted descriptive statistics (frequencies or means $\pm$ standard deviations, as appropriate) of all junior faculty/trainee (referred to hereafter as “junior investigators”) respondents by underrepresented status of their sociodemographics, affiliations, and academic productivity, ratings of their mentoring relationships with senior CBPR faculty and ratings of “biggest concerns” of CBPR faculty. We summarized responses to open-ended questions from junior investigators concerning how they became involved in CBPR, the challenges and joys of CBPR, and their perception of their mentoring experiences in CBPR.

RESULTS

In comparing respondents in the total sample (n=80) by underrepresented status (Table 1), we found that those from underrepresented backgrounds were more likely than those from non-underrepresented backgrounds to be female (81% vs. 68%), less likely to be doctorally trained (64% vs. 84%), and more likely to be junior in academic status (75% vs. 42%; $p=0.009$). They also tended to present less often at academic/research conferences but more often in non-academic settings. Underrepresented respondents also tended to have fewer peer-reviewed publications as first author or as co-author. They also tended to submit slightly fewer grants and reported much lower funding success (e.g., 8 grants funded for an average total of \$3.27m vs. 9 grants funded for an average total of \$6.83m).

Junior investigator characteristics and academic productivity

A total of 37 respondents (46% of total sample) identified themselves as junior investigators. As for the total sample, they were mainly female (n=31; 84%), doctorally trained (n=28; 76%), and part of an underrepresented group (n=27; 73%). Twelve (32%) had a faculty rank of Assistant Professor. By underrepresented status (Table 2) there were no statistically significant differences in sociodemographic, academic affiliation, or CNP characteristics. However, there were some differences in reported levels of scholarly productivity in the last 5 years. On average, compared to those not from underrepresented backgrounds, underrepresented junior investigators reported giving more oral presentations in non-academic settings (e.g., for community partners; 9 vs. 4, $p=0.01$) and having more peer-reviewed publications as a coauthor (8 vs. 3, $p=0.01$). While investigators from non-underrepresented backgrounds tended to be more likely to set goals for grant submissions and grant funding, underrepresented investigators reported more grant activity and funding success (e.g., 8 grants funded for an average total of \$2.5m vs. 3 grants funded for an average total of \$905k). Underrepresented junior investigators spent significantly more time on CBPR-related activities than their non-underrepresented counterparts (56% vs. 29%, $p=0.01$). Regardless of background, the majority of junior investigators rated their mentoring relationships with CBPR senior faculty as “good/very good.”

Junior investigator biggest concerns in CBPR

A total of 31 junior investigators (39% of total sample; 84% of total junior investigators) responded to questions about their biggest concerns in CBPR (Figure 1). Junior investigators from underrepresented backgrounds rated institutional expectations as most critical, whereas non-underrepresented investigators rated taking time to establish community relationships as most critical. Academic productivity was equally concerning to both groups. There were few other differences between groups, with these notable exceptions: underrepresented respondents reported fewer concerns with community partners understanding the academic pressures faced by CBPR faculty and balancing the CBPR process with the action desired by the community.

Qualitative responses

Introduction to CBPR—Of the junior faculty who reported how they became involved in CBPR (n=25; 68% of junior investigators), most reported their involvement was a result of being introduced to it through a funded CBPR project/program (e.g., CNP), an academic program (e.g., CBPR doctoral program), or institutional training. Additionally, having an interest in CBPR principles and health disparities not only motivated some to pursue CBPR, but also opened the door for senior faculty to invite them to participate:

“...I was introduced to CBPR by one of my faculty mentors due to a funding opportunity. I do not want to say that a funding opportunity led to my interest because that is not the case. The funding opportunity allowed me the time to devote from a professional standpoint to cultivating and nurturing relationships with community leaders and members.” (Underrepresented)

“Prior to becoming Resident Physician, I worked as a Research Associate in Cancer Prevention and Control. One of many grants that my department applied to was the NCI [National Cancer Institute]-funded pilot project that used CBPR principles.” (Not underrepresented)

Challenges & Joys of CBPR—When asked to compare and contrast the challenges in their professional lives to non-CBPR colleagues, junior investigators (n=22; 60% of junior investigators) consistently referred to issues of “time”: time to establish partnerships, time required to gain community trust, time to work with community stakeholders, and time to get research published:

“... the amount of time required to build relationships and effort required to find a balance between research rigor and meeting community needs/burden limitations is the most challenging portion of this type of research. The research happens much more quickly (thus academic end products are produced more quickly) in other fields. However, the benefits of CBPR are more comprehensive and, hopefully, long-term.” (Underrepresented)

“Non-CBPR colleagues have it easier: CBPR is time consuming and products (grants and manuscripts) may be slower to achieve. CBPR is a long-term investment of time and resources where as non-CBPR researchers may get their samples and applications done faster. CBPR requires higher level institutional commitments of resources, non-CBPR often does not. Partnerships required for CBPR are not easy to build or maintain...where non-CBPR often requires no partnerships or single entity involvement.” (Underrepresented).

While junior investigators openly expressed the challenges they faced in being committed to CBPR, the joys they expressed as a result of this work seemed to be worth the effort:

“The biggest satisfaction is interacting with the community and having theory and research be more applied. Also, partnering with the community has allowed [me] to make a more sustainable impact and outreach to the community. Without CBPR, this wouldn't be as easily possible/feasible.” (Not underrepresented)

“Feeling like I have made a difference and am committed to principles of social justice. I have had many single moments in which community members have expressed tremendous gratitude to me. While this is nice and sustains me, when the disproportionate burden of disease changes, I will know that my work made a measurable difference.” (Underrepresented)

Assessment of Mentoring Relationship—Of junior investigators who expounded on their quantitative rating of their mentoring relationships with senior faculty (n=10; 27% of junior investigators) became involved with CBPR, they commonly characterized their mentoring relationships with senior faculty as positive. Common themes included mentors being accessible (e.g., in terms of time and open communication), supportive, and generous in providing junior faculty with professional opportunities (e.g., networking) and guidance. Some junior investigators also emphasized that their senior mentors were highly respected experts in the field who truly valued CBPR and the communities they serve:

“Current faculty mentors value CBPR principles, the time required to develop and implement research initiatives with community partners, respect and sensitivity to different perspectives, and the collective knowledge and products that result.” (Underrepresented) “My advisor is an excellent mentor who always stresses the importance of community involvement in every aspect of research. As such, she is well-loved by not only her students, but also by community members.” (Not underrepresented)

Helpful Aspects of Mentoring—Respondents felt they found diversity among their mentors (e.g., by gender, seniority) and use of a “team approach” as the most helpful aspects of mentoring. Helpful mentoring teams were described as consisting of multidisciplinary investigators, community members as mentors, peers, or other trainees.

“I prefer empowerment mentoring and have always had a large, diverse, interdisciplinary team of mentors who have supported my development and provided excellent advice to me on a professional level. The empowerment mentoring approach...fit well with my learning style and allowed for interaction with mentors from multiple disciplines - some with CBPR experience and some without.” (Underrepresented)

“Having a mentor dedicated to the collaborative (team) approach and open to trying new things (expanding their research to open up opportunities for junior faculty). Having a female mentor of some sort is also important to me because it helps to reduce the sense of isolation that can be experienced by women in many fields.” (Underrepresented)

Mentors being available and having consistent contact with junior investigators was also mentioned as helpful. One particular respondent stressed the importance of junior investigators playing an active role in their mentoring by being accountable to their mentors.

“...mentoring aspects most helpful is accountability and contact with mentor, i.e. being accountable to mentors for actual deliverables and progress, also important to get networking and proposal opportunities from mentor.” (Not underrepresented)

DISCUSSION

A recognition that a cadre of junior investigators is needed to address large, and in many instances, growing cancer-related health disparities undergirds the NCI-CRCHD's attempt to increase mentoring in CBPR. Furthermore, the CNP's focus on CBPR and training of junior investigators has recently been identified as a high-impact action step to reducing cancer health disparities in the nation [7]. This study provides encouraging results for the CNP's training program, especially effort directed at underrepresented investigators. In comparison to their non-underrepresented counterparts, those from underrepresented groups generally reported spending more time on CBPR-related activities. Contrary to a commonly voiced concern regarding such activities distracting from conventional scholarly output, junior investigators from underrepresented groups responding to our survey had higher academic productivity, including more coauthored publications, grants submitted and funded, and had higher overall grant funding than their non-underrepresented counterparts.

It is interesting, and of some concern, that junior investigators from underrepresented backgrounds were more likely to rate institutional expectations as their most critical concern as a CBPR-focused investigator. While a degree of this concern may be related to underrepresented faculty generally reporting feelings of being overburdened by institutional expectations to serve on diversity-related committees [12] or advising minority students versus conducting research [13], junior investigators from underrepresented backgrounds should be encouraged that CBPR can be a main focus of a research program that can yield appropriate levels of academic productivity needed for tenure and promotion. However, for *bona fide* CBPR to be manifest, senior faculty mentors who have an appreciation of the CBPR approach and understand its importance in the changing landscape of biomedical research, must actively advocate for administrative policy changes that recognize the value of CBPR [14] and provide academic rewards to community-engaged investigators.

Given the criteria needed for academic advancement, it seems advisable for junior investigators to devise plans for procuring senior faculty, and other institutional support along a reasonable time line. The importance of mentorship is underlined by a 30-year old article in the Harvard Business Review stating that, "everyone who makes it has a mentor" [15]. While junior investigators, regardless of underrepresented status, were generally positive about their senior mentors, it also must be acknowledged that additional mentoring might be required from individuals who understand the unique nuances and culture of the academic climate that underrepresented group members experience [16–18]. "Empowerment mentoring," cited as important by one junior respondent in this survey is the process through which one seeks out a mentoring team as exigencies arise and opportunities are anticipated. Junior investigators also mentioned the importance of peer mentoring, which has shown to result in higher productivity [19] and discussion of social and professional concerns outside the bounds of the relationship with the senior mentor(s) [20]. Given that junior investigators often balance professional and family/personal responsibilities, mentorship in these areas can be beneficial.

It is essential that junior investigators demand and help to create a supportive environment. Of all the factors that affect research productivity, none is as powerful as the workplace [21]. To succeed, investigators who are committed to disparities research need to be in an environment that is supportive of writing manuscripts and grants, appreciative of the CBPR imperative, and willing to explore incentives for research [16, 22–23]. The fact that junior investigators from underrepresented backgrounds are relatively productive is encouraging. However, there is opportunity for senior mentors to increase the productivity of these investigators, particularly with manuscript development. Junior investigators from underrepresented backgrounds reported making three presentations per year, but only

publishing one manuscript per year (either as peer or co-authored). Senior mentors could assist junior investigators to transition their presentations into publications, as well help to identify other data sources for them to use for publications as they wait on their CBPR-related work to progress.

While the results from this survey are a positive reflection of the CNP's training efforts in some ways, we must keep in mind that, as with most voluntary surveys, the overall response rate was low (about 4 respondents/CNP). Our concern in obtaining IRB approval was to ensure anonymity of responses. This made it impossible to either define the denominator or to link the responses of junior investigators to those of senior faculty mentors. While anything less than 100% response could be associated with a response bias, there might be information bias even in the presence of very high overall response [24–25]. Future work in this arena should be conducted in a context in which the denominator and individual identifiers are known. This would allow for quantitative verification of the interesting finding of high relative academic productivity in underrepresented junior faculty. This finding also must be considered in light of the fact that this is the first CNP round (though some Centers were part of the Special Population Network); therefore, overall productivity may reflect the fact that many junior investigators are <5 years out from training.

The qualitative results presented here provide important leads for future work, irrespective of the population base from which they arise; there are many intriguing results evident here that should be followed up. One avenue which warrants further exploration is in the area of work-life balance, particularly among CBPR investigators. As noted by some respondents in our survey, challenges of CBPR include that it requires a greater level of resources (both personal and institutional) in comparison to traditional research. Thus, examining how CBPR-focused investigators advance academically by balancing their professional and family responsibilities would be beneficial to current investigators and those who are interested in addressing health disparities using CBPR.

Acknowledgments

This article is written as a team effort by Faculty, Staff, Former and Current Students and other Trainees, and Community Partners at Community Networks Program sites. We would like to thank the National Institutes for Health/ National Center for Minority and Health and Health Disparities for the invitation to moderate the Panel “Supporting Young Investigators in Capacity-Building Towards Eliminating Health Disparities” and present “How to Have Fun, Save The World, And Have A Viable Career In Facing The Challenges of Health Disparities” at the NIH Summit: The Science of Eliminating Health Disparities. National Harbor, MD, 17 December 2008. We also appreciate the contribution of the many individuals who completed the survey from which the data presented were derived.

Funding: National Cancer Institute, Center to Reduce Cancer Health Disparities (Community Networks Program) to:

- The South Carolina Cancer Disparities Community Network (SCDCN, PI: Hébert) [U01 CA114601-01]
- ‘Imi Hale Native Hawaiian Cancer Network (PI: Chong) [U01CA114630]
- Weaving an Islander Network for Cancer Awareness, Research and Training (WINCART, PI: Tanjasiri) [U01 CA114591]

Dr. Hébert was supported by an Established Investigator Award in Cancer Prevention and Control from the Cancer Training Branch of the National Cancer Institute (K05 CA136975).

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Figure 1.
Mean rating scores of the biggest concerns for community-based participatory research (CBPR)-focused junior investigators

Table 1

Distribution of Total Sample Characteristics and Scholarly Activity by Underrepresented Group Status (N=80)

Variable	Not Underrepresented (n=28)	Underrepresented (n=52)	p-value*
Mean age in years (n=77)	47.8 ±10.32	46.5 ±10.99	0.60
	Number (column %)	Number (column %)	
Gender			
Male	9(32.1%)	10 (19.2%)	0.20
Female	19 (67.9%)	42 (80.7%)	
Education			
Bachelors or less	1 (3.6%)	4 (7.7%)	0.14
Masters	3 (10.7%)	15 (28.8%)	
Doctoral/Post-doctoral training	24(85.7%)	33 (63.5%)	
Source of Employment			0.09
Academic	25 (89.3%)	38 (73.1%)	
Agency/Non-profit/Other	3 (10.7%)	14 (26.9%)	
Academic status (n=60)			0.009
Senior Faculty	14 (58.3%)	9 (25.0%)	
Junior investigator	10 (41.7%)	27 (75.0%)	
Academic title			0.12
Student/Research Assistant	1 (4.2%)	4 (11.1%)	
Postdoctoral Research Associate (non-tenure)	1 (4.2%)	6 (16.7%)	
Assistant Professor	4 (16.7%)	8 (22.2%)	
Associate Professor	4 (16.7%)	9 (25.0%)	
Full Professor/Endowed or Dept Chair	12 (50.0%)	6 (16.7%)	
Other (e.g., Program Director, Physician)	2 (8.3%)	3 (8.3%)	
Community Networks Program (CNP) Region			0.45
West Coast	6 (21.4%)	7 (13.5%)	
West, but not the Pacific Ocean	3 (10.7%)	8 (15.4%)	
North	4 (14.3%)	12 (23.1%)	
South	9 (32.1%)	12 (23.1%)	
Pacific Islands (Hawaii)	1 (3.6%)	8 (15.4%)	
National	2 (7.1%)	2 (3.9%)	
CNP Target			0.58
African American	5 (17.9%)	7 (13.5%)	
Appalachian	6 (21.4%)	9 (17.3%)	
Asian	2 (7.1%)	0 (0.0%)	
Hispanic/Latino	6 (21.4%)	15 (28.9%)	
Native American/Alaskan Native	1 (3.6%)	2 (3.9%)	
Native Hawaiian/Pacific Islander	4 (14.3%)	8 (15.4%)	
Underserved	0 (0.0%)	2 (3.9%)	
More than one target population	4 (14.3%)	9 (17.3%)	
Scholarly activity in the last 5 years (means ± standard deviations)			

Variable	Not Underrepresented (n=28)	Underrepresented (n=52)	p-value*
Oral/poster presentations at academic/research conferences	23 ± 43 (n=20)	17 ± 16 (n=40)	0.58 [†]
Oral/poster presentations in non-academic settings	9 ± 11 (n=20)	15 ± 15 (n=39)	0.11
Peer-reviewed publications as first author	8 ± 9 (n=24)	5 ± 6 (n=41)	0.16 [†]
Peer-reviewed publications as co-author	22 ± 36 (n=23)	10 ± 14 (n=43)	0.15 [†]
Grants submitted	18 ± 17(n=22)	16± 17 (n=43)	0.59
Grants funded	9 ± 9 (n=24)	8 ± 10 (n=44)	0.47
Amount of funding received	\$6,835,690, ± 8,256,167 (n=15)	\$3,274,823 ± 6,096,823 (n=33)	0.10
Percent of salary from “soft” sources	67.5% (n=20)	70.6% (n=40)	0.74

* P-value tests the difference between the **Not Underrepresented** and **Underrepresented** groups

[†] Used Satterwaite estimates due to low sample size

Table 2

Summary of Junior Investigator Characteristics and Responses Concerning Scholarly and Community-based Activities by Underrepresented Status

Variables	Not Underrepresented (n=10)	Underrepresented (n=27)	p-value [*]
Mean age in years	40.2 ± 7.96	43.4 ± 9.30	0.65
Gender			0.70
Male	2 (20.0%)	4 (14.8%)	
Female	8 (80.0%)	23 (85.2%)	
Education			0.56
Bachelors or less	1 (10.0%)	1 (3.7%)	
Masters	1 (10.0%)	6 (22.2%)	
Doctoral/Post-doctoral training	8 (80.0%)	20 (74.1%)	
Academic title			0.85
Student/Research Assistant	1 (10.0%)	4 (14.8%)	
Postdoctoral Fellow/Research Associate (non-tenure)	1 (10.0%)	6 (22.2%)	
Assistant Professor	4 (40.0%)	8 (29.6%)	
Associate Professor	2 (20.0%)	6 (22.2%)	
Full Professor/Endowed or Dept Chair	0 (0.0%)	0 (0.0%)	
Other (e.g., Physician, Project Director)	2 (20.0%)	3 (11.1%)	
Community Networks Program (CNP) Region			0.26
West Coast	5 (50.0%)	4 (14.8%)	
West, but not the Pacific Ocean	2 (20.0%)	4 (14.8%)	
North	0 (0.0%)	7 (25.9%)	
South	2 (20.0%)	7 (25.9%)	
Pacific Islands (Hawaii)	0 (0.0%)	1 (3.7%)	
National	0 (0.0%)	2 (7.4%)	
CNP Target			0.088
African American	0 (0.0%)	3 (11.1%)	
Appalachian	3 (30.0%)	6 (22.2%)	
Asian	1 (10.0%)	0 (0.0%)	
Hispanic/Latino	3 (30.0%)	7 (25.9%)	
Native American/Alaskan Native	0 (0.0%)	2 (7.4%)	

Variables	Not Underrepresented (n=10)	Underrepresented (n=27)	p-value*
Native Hawaiian/Pacific Islander	3 (30.0%)	1 (3.7%)	
Underserved	0 (0.0%)	1 (3.7%)	
More than one target population	0 (0.0%)	7 (25.9%)	
Scholarly activity in the last 5 years			
Mean # oral or poster presentations at academic/research conferences	10 ± 9 (n=8)	16 ± 14 (n=22)	0.27
Mean # oral or poster presentations in non-academic settings	4 ± 2 (n=8)	9 ± 9 (n=19)	0.01 [‡]
Mean # peer-reviewed publications as first author	4 ± 3 (n=8)	5 ± 6 (n=22)	0.47
Mean # peer-reviewed publications as co-author	3 ± 2 (n=7)	8 ± 6 (n=23)	0.01 [‡]
Mean # grants submitted	6 ± 4 (n=8)	14 ± 16 (n=22)	0.03 [‡]
Mean # grants funded	3 ± 1 (n=8)	8 ± 10 (n=23)	0.04 [‡]
Mean amount of funding received	\$905,143 ± 1,487,243 (n=7)	\$2,550,188 ± 3,637,621 (n=16)	0.14
Mean percent of salary from "soft" sources	79% (n=7)	84% (n=21)	0.70
Setting of academic goals for scholarly activities			
Set goals for manuscripts	4 (50%) (n=8)	10 (50%) (n=20)	1.00
Set goals for grants	4 (50%) (n=8)	7 (35%) (n=20)	0.67
Set goals for grant funding	4 (57.2%) (n=7)	5 (25%) (n=20)	0.18
Set goals for CBPR activities that do not specify an academic product	2 (25%) (n=8)	6 (31.6%) (n=19)	1.00
Community-based participatory research (CBPR) relationships and activities			
Mean rating of mentoring relationships with CBPR Senior Faculty (1=poor, 5=excellent)	3.7 (n=9)	3.9 (n=23)	0.75
Percent time spent on CBPR activities	29% (n=9)	56% (n=21)	0.007
Percent time spent devoted to building community relationships	30% (n=7)	34% (n=20)	0.72
Percent time recommended for junior faculty to devote to community engagement	25% (n=7)	28% (n=17)	0.67
Percent time recommended for junior faculty to devote to CBPR activities that do not specify an academic product (e.g., grant, peer-reviewed publication)	34% (n=7)	36% (n=19)	0.88

* P-value tests the difference between the **Not Underrepresented** and **Not Underrepresented** groups

[‡]Used Satterwaite estimates due to low sample size