



# Increasing research capacity in community organizations: Findings from the Community Research Scholars Initiative

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## ABSTRACT

Increasing research capacity in community-based organizations (CBOs) can equip the organizations to be more equal partners in academic/community partnerships and can help them be more accountable to their clients and funders. In this study, we report on findings from four years of data collected from the Community Research Scholars Initiative (CRSI) in Cleveland, Ohio. CRSI provided intensive research training over two years to two cohorts (N = 9) of frontline workers (“Scholars”) from CBOs focused on health disparities. Scholars completed one year of didactic training and one year of mentoring to complete a research project based at their organization. Findings from surveys, focus groups with Scholars, and supervisor interviews indicated changes in Scholars’ knowledge, confidence, and comfort with research concepts and skills. Scholars also demonstrated greater confidence in interacting with academic researchers, enhanced networks and career opportunities, and increased capacity for conducting community-based research. Scholar and organization engagement with community-based research was maintained after the program’s end through a community-based research network (CBRN). Findings suggest that the intensive training program for community members with a broad curriculum, mentoring, and strong support helped changed how CBOs think about data and research and demonstrate the impact of their work.

## 1. Background

Research on community-based participatory research (CBPR) supports the wisdom of building communities’ capacity to conduct research. CBPR posits that community members can both contribute to and develop vital knowledge and skills essential to the research process (Caldwell et al., 2015). Fully embracing the principles of CBPR requires that academics and their community partners, two groups who undergo different types of training, share a common understanding, or culture, around research (Rubin et al., 2016). However, research knowledge and skills are traditionally attributed to academicians, with whom organizations often contract out research expertise, technical assistance, and program evaluation (Cheadle et al., 2002). The literature focuses on how community-academic partnerships can facilitate research on and with communities (De las Nueces et al., 2012; Drahota et al., 2016; Eriksen & Rothenberg, 2012). Recent efforts have involved determining how to equalize power relationships around research by training CBO staff themselves on how to conduct research. This paper describes the

findings from a four-year program focused on increasing research capacity in CBOs through an intensive training program in Cleveland, Ohio for CBO staff.

### 1.1. Building research capacity in CBOs

CBOs tend to be trusted institutions, experts in their communities and populations, and hold significant power as gatekeepers. However, a lack of knowledge and training in research can hinder the ability to perform rigorous needs assessments, systematically identify best practices, modify pre-existing programs, develop new programs, or obtain competitive funding (Caldwell et al., 2015; Crosby et al., 2013; Currie et al., 2012; Salimi et al., 2012). Lack of knowledge can also impede CBOs’ abilities to develop and maintain equitable partnerships with academic researchers. Ultimately, these issues can reduce the possibility of using data to improve administration, efficiency, and program outcomes.

Funding support for CER initiatives over the last 16 years has led to

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noteworthy efforts across the U.S. to encourage collaboration between academic institutions and health and human service organizations to increase capacity for policy advocacy (Cheezum et al., 2013; Israel et al., 2010) or research (Andrews et al., 2013; Caldwell et al., 2015; Cheadle et al., 2002; Crosby et al., 2013; Kegler et al., 2016; Lucero et al., 2018; Seifer, 2006; Strong et al., 2009). Training efforts to build research capacity have variously focused on building the CER skills of community members in Minnesota, Mississippi, Michigan, New York, and Washington (Allen et al., 2011; Fastring et al., 2018; Hayes et al., 2020; Israel et al., 2006). Other programs have focused on training employees of community-based organizations in Michigan (Israel et al., 2010). Still other programs have trained community members and academics together in Mississippi, New York, Alabama, Missouri, and Arkansas (Allen et al., 2011; D'Agostino McGowan et al., 2015; Lewis et al., 2015; McElfish et al., 2019; Tumiel-Berhalter et al., 2007; Turner et al., 2017). Most capacity-building programs focus on teaching academic trainees and community members about how to best partner with one another on research. The lengths and intensity of trainings vary widely from short trainings (one time; Battaglia et al., 2019) ranging up to two years (McElfish et al., 2019). Some programs' efforts resulted in a product, mostly exploratory or pilot studies (Allen et al., 2011; Fastring et al., 2018; McElfish et al., 2019); or grant proposals (Lewis et al., 2015); others did not.

Although much of the literature focuses on academic-community partnerships, there are barriers that get in the way of successful partnerships. While academic-community partnership trainings are intended to equalize knowledge by introducing each partner to the culture, knowledge, and language of the other, there are several problems with how academics address research with communities (De las Nueces et al., 2012; Dwyer & Buckle, 2009; Ford et al., 2013; Theurer et al., 2015). Within the academic culture, academics are often not rewarded for their engagement with community organizations through promotion, tenure, or other recognition, making academic researchers less likely to take the time from competing work demands to establish relationships with CBOs (Woods-Jaeger et al., 2021). The difficulties involved in engaging academic partners make it especially important that community members have the capacity to lead their own projects. Enhancing CBOs' research and evaluation skills also has the potential to increase community understanding, trust, and involvement in research and evaluation activities (Rubin et al., 2016; Theurer et al., 2015).

Much of the CER literature notes that short training time frames are not conducive to the efforts needed to apply skills, complete projects, and develop dissemination products (Amico et al., 2011; Battaglia et al., 2019; Coombe et al., 2020; Hayes et al., 2020; Kegler et al., 2016). Battaglia et al. (2019) in particular noted that while their Boston University Clinical and Translational Institute (CTI), Connecting Community to Research (CCR) Training Program trained 100 community members, engagement was poor, and the one-time training did not foster strong engagement. Israel et al. (2010) also noted that sustainability can be challenging after the initial training program funding ends. Building CBOs' internal research capacity is consistent with the principles of CBPR and offers greater prospects for sustaining capacity (Ploeg et al., 2008). The current study describes the findings from one such effort, filling noted gaps in the literature involving training time frames being too short, not facilitating long-term engagement, and not resulting in a concrete product. Theurer et al. (2015) reported on experiences with the first CRSI cohort; this study examines both cohorts together. To our knowledge, the current literature neglects the examination of programs training CBO workers to be able to conduct a full research project independently within their organization *and* be prepared to partner with academics.

### 1.2. Program context and description

Before the start of the program described here, the Case Western Reserve University (CWRU) Center for Reducing Health Disparities

(CRHD), housed at MetroHealth in Cleveland, Ohio, held quarterly meetings with its Community Partnership Committee (CPC). This committee was composed of academics, employees of CBOs (not participating CRSI organizations), and members of the community. The committee focused on learning about community concerns that could be addressed by research. It also explored the best approaches for recruiting community members to engage in research as partners or participants and how best to disseminate research findings in the community. Through this work, the CRHD learned that local CBOs had minimal capacity for conducting research and evaluation in-house. The organizations also tended to feel underinformed about the research process when academicians approached them about research opportunities. This feedback led the CRHD to develop the Community Research Scholars Initiative (CRSI) to train Cleveland's CBOs to conduct research and connect them with local researchers.

In developing CRSI, the program directors (a former CBO executive director and a long-time master's level academic research coordinator) examined existing research capacity-building programs. From this examination, they learned that in other programs, community-based trainees felt that they were tasked with learning and conducting projects on top of their already busy work schedules (Jewett-Tennant et al., 2016). By building out the two days a week and reimbursing agencies to cover staffing for this time, CRSI hoped to avoid this tension. Additionally, they designed the program to balance the academic and community perspectives to avoid building capacity simply through indoctrination by academics. With every lesson, an academic expert and a community expert-led presentations to Scholars and engaged with the Scholars in an informal dialog. This was intended to expose the Scholars to expertise both within and outside of the university.

CRSI was expected to affect its participants on three levels. First, the training was expected to increase individual Scholars' skills and capacities. Second, the training was expected to increase the Scholar's host agency's research skills and capacities and prepare the agency to collaborate with academic researchers on an equitable basis. This was expected to occur through the Scholar disseminating their learning to coworkers, with the supervisor's support and involvement. Third, over the long term, the training was expected to increase the skills and capacities of the community-based health and human services sector in Greater Cleveland (See Theurer et al., 2015). This was expected to be accomplished by creating a supportive infrastructure for community researchers.

The CRSI Scholars were selected through an application and screening process among Greater Cleveland's CBOs addressing health disparities. Selected Scholars were front-line workers who committed 40% of their time (two full days per week) for two years to the training. Using a combination of adult learning theories, the CRSI curriculum included readings, coursework, seminars, workshops, and other activities delivered didactically and experientially. The training covered research topics including but not limited to research design, quantitative and qualitative methods, ethics, and grant writing (see Theurer et al., 2015 for more details). The curriculum was broken into four distinct sessions, each consisting of 15–20 modules developed around three concepts: engaging ideas, engaging academia, and engaging community.

Seeking to build research capacity in a practical way that utilized Scholars' experiences and critical reflection, CRSI planned for the research concepts to be easily translated into the Scholars' work. The Scholars visited CBOs across the community, and the program highlighted agencies whose work related to the topic being covered, utilized research, or had access to resources that could be useful for the Scholars. For example, in the module focused on conducting literature reviews, the Scholars visited the Foundation Center library and learned to use the library's resources. Throughout the training, Scholars engaged in peer teaching, gave presentations, and wrote blogs on their experiences. Scholars used their new skills to develop their research projects jointly with their agency supervisor and CRHD co-directors and staff.

The original design of the program was to train Scholars to conduct hypothesis-driven research with the goal that they would be prepared to discuss issues of rigor at academic levels in a publishable manuscript. To accomplish this, related topics were introduced in stages, including conducting literature reviews and the Scholars participated in an 8-week long data analysis boot camp led by a local CBO. However, as the program developed, it focused more closely on multiple ways of developing knowledge relevant to their organizations. Thus, the program defined research as a broad array of investigatory practices that play out in many areas of life rather than a narrow set of research practices conducted within the academy. This set of practices included designing and conducting needs assessments and quality assurance activities using a broad range of data collection methods. The program hoped to increase the likelihood that data could inform program decision-making and that the organizations would build resource capacity to sustain such efforts. Participating Scholars were expected to become part of a network of CBOs that would conduct research or evaluations and pool their time, resources, and expertise to serve as an advising and support body for a community of community-based researchers.

1.3. Aims and questions

Three main questions guided our exploration of the program’s outcomes. We asked: Among community organization employees participating in a community-focused research training program: (1) What were Scholars’ experiences with the program and what did they gain from it? (2) To what extent were goals of increased organizational and/or community research capacity achieved, and (3) What factors contributed and/or hindered the goal of increased research capacity?

2. Methods

2.1. Design

The study was a concurrent mixed methods case study design (Creswell & Plano Clark, 2011). We collected survey data throughout the program and conducted focus groups with participants to learn about their experiences.

2.2. Participants

The two cohorts of CRSI Scholars each participated in the program for two years. A total of nine organizations addressing health disparities in some way participated. From each organization, a Scholar and their supervisor were considered part of the cohort. The organizations represented a lesbian, gay, bisexual, transgender (LGBT) services center, a neighborhood settlement house, an information and referral hub, a massage therapy network, a large youth services agency, a crisis intervention service, a cancer support agency, a health policy advocacy organization, and an Asian multi-service agency. The cohorts were trained from 2013 to 2016.

Nine Scholars completed the program. In each cohort, one Scholar dropped out soon after the CRSI training began; in both cases, another employee from another organization was selected to replace the Scholar. All participating Scholars across both cohorts completed the baseline survey. All three Scholars from the first cohort completed all surveys at all three time points. Five of the six second cohort Scholars completed the mid-and follow-up surveys (one left her job and relocated out of state before the end of the program). All Scholars were women, six were White, one identified as a member of the lesbian, gay, bisexual, and transgender (LGBT) community, two were African American, and one was AAPI (Asian American Pacific Islander, specifically, Hmong). Their levels of education ranged from high school graduate (n = 1) to having obtained Bachelors (n = 3) and Masters (n = 5) degrees. Scholars ranged from 26 to 61 years old (M = 39.3, SD = 10.1) at the start of the program. Scholars’ places of residence around the Cleveland area were diverse,

ranging from the inner city to rural and suburban areas.

2.3. Measures

Quantitative survey data were collected regularly throughout the four-year program using participant surveys, and qualitative interviews (focus groups) were conducted with Scholars, Scholars’ supervisors, and program co-directors. Surveys explored the extent to which individual Scholar interviews explored perspectives, experiences, and program impacts.

Surveys were developed to assess changes in knowledge on module/curriculum domains (Research Knowledge, Research Research-Related Confidence, Comfort, and Engagement, Changes in Academic & Community Understandings; see Table 2). The survey also explored experiences and perceptions about the impact of the program in open-ended questions. Because we hoped to explore gains in knowledge related to the module and curriculum, the survey questions were created specifically to assess the program curriculum’s goals. The “general” level questions included questions about the impact of the program on the Scholar personally, professionally, on their organization, and on the community. Questions assessing the curriculum included questions about Scholars’ perceptions about their knowledge of and comfort with research, and skills they acquired since beginning the program. The survey included a mix of forced-choice and open-ended questions. The question stem “Since beginning the CRSI...” explored questions about knowledge (answer choices were 5 =Completely; 4 =Yes, mostly; 3 =Neutral; 2 =Sort of, but not yet; and 1 =Not even close), and questions with the stems “Because of my experience in the CRSI...” and “As a result of working through the CRSI modules...” examined experiences and program impact (answer choices included 5 =Strongly agree; 4 =Agree; 3 =Neutral; 2 =Disagree; 1 =Strongly disagree). A research knowledge scale was constructed which included the following items: “I have a strong grasp of the difference between qualitative and quantitative research methods” “I can determine whether qualitative, quantitative, or a mix of methods would be appropriate for answering a particular research question” “I could conduct a focused literature review” “I can identify ethical issues in research” and “I have a strong grasp of the role of the IRB”. The possible range for the five-item scale was 5–25. The full survey is included as a supplemental file.

Table 1  
Qualitative Themes & Representative Quotations.

Finding	Theme	Representative Quotes
Process Findings	<ul style="list-style-type: none"> <li>Scholars Felt Embedded in the Research Community</li> </ul>	<ul style="list-style-type: none"> <li>“You really feel like you’re a part of this academic world, you’re in the hallways with [them] and you see people at the copy room.”</li> </ul>
Outcomes: Facilitators and Barriers	<ul style="list-style-type: none"> <li>Strong Scholar/Supervisor Relationship</li> <li>Scholars Had Limited Institutional Power</li> <li>Institutional Priorities Crowded Out Research</li> </ul>	<ul style="list-style-type: none"> <li>“The supervisor/agency can make/break the program if you’re not careful.”</li> <li>“For organization change it would need to be more than just myself.”</li> <li>“There has been ... changes with our staff meeting setup, just I think other priorities.”</li> </ul>
Outcomes: Evidence of Increased Research Capacity	<ul style="list-style-type: none"> <li>CRSI was a Career Springboard for Scholars</li> <li>Application of Learning to Organization</li> </ul>	<ul style="list-style-type: none"> <li>“This is my chance to grow.”</li> <li>“I think it’s also about... allowing us to be more critical about what funders give us when we do evaluation, because I feel more comfortable pushing back and saying like ‘This tool does not make sense for our community, or it’s not collecting the data that we really want.’”</li> </ul>

**Table 2**

Survey Findings: Research Knowledge, Research-Related Confidence, Comfort, and Engagement, and Academic & Community Understandings (N = 9).

	Baseline M (SD)	Follow- up M (SD)	Change (+/-)
<i>Research Knowledge</i>			
I have a strong grasp of the difference between qualitative and quantitative research method	2.8 (1.1)	4.8 (0.4)	2.0
I can determine whether qualitative, quantitative, or a mix of methods would be appropriate for answering a particular research question	2.8 (1.3)	4.6 (0.5)	1.8
I could conduct a focused literature review	3.4 (1.0)	4.5 (0.5)	1.1
I can identify ethical issues in research	3.6 (0.8)	4.5 (0.5)	0.9
I have a strong grasp of the role of the IRB	3.1 (0.9)	5.0 (0.0)	1.9
<i>Research Research-Related Confidence, Comfort, and Engagement<sup>1</sup></i>			
<i>Stem: "Since beginning the CRSI..."</i>			
I feel (more) comfortable thinking about research	3.6 (1.4)	4.6 (0.5)	1.0
I feel (more) confident in my grasp of research concepts	3.0 (1.1)	4.5 (0.5)	1.5
I feel (more like) I could teach someone else about research	2.8 (0.9)	4.0 (0.9)	1.2
I know (more) about research	4.0 (0.5)	4.8 (0.5)	0.8
I care (more) about research	4.4 (0.7)	4.8 (0.5)	0.4
I feel (more) engaged in research issues/topics	3.8 (0.9)	4.9 (0.4)	1.1
My presentation skills have improved	3.3 (1.1)	4.9 (0.4)	1.6
<i>Changes in Academic &amp; Community Understandings</i>			
<i>Follow-up stem: "Because of my experience in the CRSI..."</i>			
I understand what academic researchers do	3.3 (0.8)	4.6 (0.5)	1.3
I could engage an academic researcher in conversation about research	3.1 (1.0)	4.5 (0.8)	1.4
I know how to engage the community around research	3.5 (0.5)	4.6 (0.5)	1.1
I have a better sense about the impact research can have on communities	4.1 (0.5)	4.8 (0.5)	0.7
I can make a difference in my community through research	4.4 (0.8)	4.6 (0.4)	0.2

Notes: Scale: 1 = not at all; 5 = completely; <sup>1</sup>Words in parentheses not included in baseline survey.

**Interviews.** To obtain a richer understanding of formative and summative aspects of the CRSI experience, a semi-structured interview guide was used to explore Scholars', supervisors', and the co-directors' experiences with the program. Essentially, however, they fulfilled the same function: to understand the rich individual and group experience of those closest to the program and to better understand the mechanisms by which CRSI was believed to drive the changes. Scholars' and supervisors' questions focused on better understanding the program's impact on them, exploring areas of the program seen as most successful and memorable, and areas in which they recommended the program make changes. The questions explored the program's impact on the Scholars from a personal perspective, a professional perspective, and the promise of the program to effect institutional and community change(s) regarding research. Ten questions were asked covering the experiences the Scholars had with the program, including their perspectives on the program impact and overall reflections. The co-directors' interview was intended to gauge the program context, intent, and learning from their perspectives.

#### 2.4. Procedures

All research activities were approved by a university-based institutional review board.

#### 2.5. Survey procedures

Surveys were administered three times in each cohort. The first survey (baseline) was administered within the first few months of the

program's start. A second survey was administered approximately six months later for Cohort 1 to gather early process measures for mid-program adjustments (findings not reported here due to space limitations), and at one year for Cohort 2. The final survey (follow-up) was administered within three months of program completion. The baseline and follow-up findings are presented here. In the first cohort, the first two surveys were paper-and-pencil and administered in person. The follow-up survey and all Cohort 2 surveys were administered online using RedCap. Respondents were invited to participate via an email invitation.

#### 2.6. Interview procedures

The first author conducted all interviews. Focus group interviews with Scholars and supervisors were conducted separately, by group, in a meeting room at the CRHD. The focus groups were held toward the end of the didactic training portion of the program. The Scholar focus group lasted for approximately one and a half hours, and five of the six Scholars were present. The focus group's tone was friendly and expressive; the Scholars knew each other well. The first cohort's supervisor interviews were conducted individually. Two were interviewed in private offices at their workplaces, and one was interviewed at a coffee shop. The second cohort supervisors were interviewed in a focus group in a meeting room at the CRHD. Two supervisors were unable to attend the scheduled focus group and the interview was conducted individually. An in-person interview was conducted with a fourth supervisor at their office, and a phone interview was conducted with a fifth as they were traveling. All interviews except for the phone interview were recorded using an MP3 player and submitted to a professional transcriptionist. No interviewees received incentives for participating.

#### 2.7. Analysis

The survey data were analyzed using simple descriptive statistics. Means and standard deviations were calculated, but no inferential tests of statistical significance were performed due to the small sample sizes. The data are thus examined with an eye toward overall trends. Analysis of the qualitative data involved thematic analysis (Braun & Clarke, 2006), beginning with applying deductive codes to the interview transcripts, open-ended survey questions, and interview field notes that addressed our questions of interest (e.g., knowledge and skills, changes in research capacity). We also coded the data inductively, developing themes and sub-themes. To enhance the trustworthiness of our data, we shared our summaries and interpretations with the first cohort participants (i.e., conducted member checks) and incorporated feedback. We triangulated data between multiple data sources (surveys, Scholar, supervisor, and co-director interviews) (Patton, 2015) to ensure we were capturing as much of the Scholars' experience as possible. We also conducted peer debriefing with a second evaluator involved in the CRSI evaluation to help place the findings in context and check the interpretation for bias.

#### 2.8. Findings

##### 2.8.1. Process findings

In their interview, the co-directors believed the 40% time commitment, was "not sustainable," saying 20% would be more reasonable. Similarly, supervisors said the program was at times "too demanding," and "distracting" from the Scholars' usual work. However, in the open-ended survey comments, one Scholar wrote, "if at all possible, maintain the 16-hour a week schedule for the most impact." The co-directors reported that adjusting the program to deal with trainees pulling out of the program (due to job turnover) was also difficult. One co-director said, "We didn't know how disruptive it would be. Which is a reflection of the fact that it's labor-intensive. You invest a lot of time in specific people who when they go away, is hard." Supervisors also wished for the

program's days to be more scattered, and not held at the end of the week on consecutive days (Thursdays and Fridays). Supervisors also suggested developing a separate agenda with "homework" between meetings for supervisors and clear direction about how to apply their Scholars' learning.

An important element of the program that emerged from the interviews was that Scholars were official parts of the academic hospital where they were based, and physically located on the same floor as other academic research centers. These factors helped institutionalize Scholars' belongingness in the academic space. The co-directors described how this was accomplished:

Really making them a part of Metro has also been a key part. ...The fact that they went through orientation, they have a ...badge, they have an office here; I mean that really makes them feel more embedded into the research world even though those are some physical things, it really tends to add [up]. ... You really feel like you're a part of this academic world, you're in the hallways with [them] and you see people at the copy room.

Scholars were also invited to weekly seminars where they could learn about up-to-date academic research which helped them, one co-director said, "to see how researchers think about things, how it really works on a really regular basis." Scholars' embeddedness in the program was enhanced by the devoted time they spent on the program, a key element of the model. In addition to time, the relationships between the Scholars and program directors were close. The co-directors noted in their interview that "developing curriculum, changing it, being reflexive, responsive, mentoring, coaching" were all more time-consuming than anticipated.

With community folks, they need that personal attention. ...If we just give people a task, like go do this, they falter off, and if we kind of help them through it and coach them through it, it will be better.

Thus, the coaching and mentoring relationships the co-directors developed with each agency and Scholar required flexibility and a highly individualized, supportive approach.

## 2.9. Outcomes

All Scholars presented their findings in both community (including to the CPC mentioned earlier) and national forums via poster presentations and submitted findings for publication in peer-reviewed academic journals. Projects examined a variety of issues within organizations, including the high turnover of community health workers, factors influencing parenting program completion, stress reduction among frontline workers, the barriers transgender women experience accessing health care, and the role of support services in improving health outcomes in a clinic serving immigrant populations. Three Scholars' manuscripts were published. In answering our research questions about what factors facilitated and what factors served as barriers to increased research capacity, two key facilitator themes were: (1) Developing knowledge, skills, and comfort, and (2) a strong Scholar/supervisor relationship (see Table 1). Concerning barriers, two themes were identified" (1) Scholars lacked institutional power to make deep changes, and (2) institutional priorities crowded out research. Regarding evidence of organizations increasing their research capacity, we found themes that suggested: (1) CRSI was a career springboard for Scholars, and (2) Scholars' training was being applied directly to changing the organizations' work.

### 2.9.1. Facilitators to building research capacity

**2.9.1.1. Increases in knowledge, skills, and comfort with research.** Data from the survey, open-ended comments, and interview data all indicated Scholars' perceptions of what they had learned. Scholars' supervisors

also confirmed in their interview that Scholars had learned a great deal. All quantitative survey items indicated a gain between baseline and follow-up. Increased self-reported research knowledge and skills (see Table 2) were indicated by the average baseline score on the research knowledge scale ( $M=16.1$ ,  $SD=3.5$ ) as compared to follow-up ( $M=24.4$ ,  $SD=6.7$ ), indicating an 8.3-point increase in research knowledge. In addition to feeling more knowledgeable, the Scholars also reported feeling more confidence, comfort, and engagement with research. They also felt more prepared to apply their knowledge in the community and their work and make changes in their community through research at follow-up as compared with baseline. The biggest gains between baseline and follow-up were reported for understanding the differences between quantitative and qualitative research methods and when each should be used, understanding the role of the IRB. The weakest gains were found for feeling they could make a difference in their community through research and caring more about research (baseline scores for both were already high).

In open-ended responses, Scholars wrote about their learning of mixed methods data collection techniques; how to work with large and small datasets; how to code data; how to use presentation and software packages; and how to critique research. Representative of these comments included "How to utilize quantitative methods to create understanding of qualitative data and utilizing qualitative data to give meaning to quantitative data;" "To code and collect data systematically to prepare for analysis." Scholars also reported gaining other skills, including time management, presentation, and organizational skills. Representative of Scholars' views was this open-ended response: "My presentation skills are astronomically better than when I started!" Another representative comment included: "My network has grown, as has my speed in producing quality written communication." In interviews, supervisors also confirmed Scholars' increased knowledge and improved skills, particularly emphasizing presentation improvements.

The qualitative data linked increases in Scholars' knowledge and skills to their increased confidence and comfort in dealing with research and data. In open-ended comments, Scholars wrote about being more confident in identifying the most appropriate methods to get the data they needed and working with data in their work. They also noted having more "knowledge...to be able to have real conversations" about research, felt they more fully understood "how research really happens," and had a better sense of the larger world of academic research. They also noted they gained a "richer/deeper understanding of the aspects of research." They Scholars also noted that they had previously felt intimidated and/or afraid of research before the program, but the program helped dispel those fears. In interviews, supervisors confirmed that the Scholars went from seeing academic research as "untouchable and scary" to "manageable" and "accessible."

There's a higher level of confidence in terms of her understanding about how to embark in community-based research. [She] has...a clear vision of what it will take for us to have institutionalized a community-based research practice program here. ...On a day-to-day basis, we get these kinds of communications from different potential research partners, and I find ourselves in a better position to negotiate and navigate those conversations.

An open-ended comment summed up Scholars' experiences "It has given me the confidence to walk into a room and talk about research comfortably."

In terms of how prepared they felt to effect change regarding research, Scholars reported in interviews that their new knowledge and skills allowed them to examine their work in new ways. They also said they can now critically reflect on the interventions their agencies use, question the evidence behind interventions, and identify research gaps. They noted they had developed a sense of curiosity about what related research had been done, now question the impact of research, and seek to question who benefits from research. Scholars also wrote that they learned: about the importance of collaborating in research; why and

how to develop a memorandum of understanding (MOU) in collaborative work; how to utilize a community/academic researcher toolkit to clarify research roles; “pathways for learning and disseminating information”; a better understanding of how their organization interacts with the community and uses research; and how to translate relevant research for their organization. An open-ended comment summed up the Scholars’ overall beliefs about the benefits of increased knowledge and skills around research “to help make informed decisions that can lead to better program outcomes and organizational development.” The training, Scholars wrote, provided them with the foundation and appreciation for research from both the researcher and community perspectives, which “can help bridge the gap in communication between scientists, academics and the community they serve.”

**Networking.** The co-directors’ intentional strategy to embed Scholars in the research community included connecting them to local researchers and academics and expanding their networks.

We wanted our researchers to leave the program able to pick up the phone and ask for help from a wide network of people that they met over the years, who could be helpful to them on an ongoing basis. Not simply to pass a test, but to be part of a network.

In their focus groups, Scholars noted that networking was an important benefit of the program that they felt would benefit them personally as well as their organizations. They said the program took them into the community where they met academic researchers, learned about partnering with academic institutions, and learned about how other CBOs conduct and use research. These activities helped to demystify research for the Scholars. Other Scholars talked about formalizing their new contacts on LinkedIn.

A lot of times we meet new people or people, I might not know them, but I know their agency or organization, but we might have like five connections [in common]. ... It kind of helps I think bring about that credibility... helps me bridge the gap a little bit.

In both interviews and the open-ended survey questions, Scholars said that networking helped them feel that they were more connected to outside agencies, to the “incredibly robust research community in Cleveland working on amazing issues.”

## 2.10. Strong Scholar/supervisor relationship

In addition to the importance of organizational commitment, the co-directors said in their interview that the supervisor/Scholar relationship was “huge” to each Scholar’s experience in the program, as was the supervisors’ engagement. This was exemplified in part by attending meetings and being actively involved in their Scholar’s project. The co-directors said they had known but not fully understood how critical the supervisor/Scholar relationship was at the beginning of the project. In the open-ended section of the survey, Scholars suggested the program could be improved by increasing the Scholar and supervisor’s communication around the project. “The supervisor/agency can make/break the program if you’re not careful.” In the interview, asked about the extent to which they shared their experiences with supervisors, Scholars described a range of experiences. Some reported sharing their work on the project monthly, in short reports, including what the agency could do to support the project, while others shared the information only in passing and/or in less depth.

Supervisors said that CRSI did not have a lot of “filler” that the meetings were purposeful, valuable, “strongly focused,” and the meetings were well-attended. Supervisor also noted the program created a safe place for supervisors, as they felt comfortable posing questions and taking them back to the Scholars, further enhancing the Scholar/supervisor interaction. The “true immersion experience,” of the program, supervisors said, contributed to the depth of change that occurred in the Scholars, a change that they saw as permanent.

### 2.10.1. Barriers to building research capacity

**2.10.1.1. Scholars had limited institutional power.** Although the Scholars were eager to share their knowledge with their organizations, that enthusiasm was tempered by feeling limited by their positions within their organizations, and they were cautious about sharing in the “right” way. Scholars were concerned about how they might be perceived, worrying that coworkers would feel envious or unfairly treated by not being selected to participate.

I want to share everything that I’m doing here, ‘cause I think it’s so great and it has tons of potential and impact. At the same time, I don’t want to talk about it too much to make it seem like ...I’m more loyal to CRSI than my home agency or that I want to create like a shift in power. ...I don’t want to [seem] like I’m better because I’m in this program.

While Scholars were optimistic about how their training could affect their organizations, they felt hamstrung by their lack of power. Pointing out that their organizations’ committing to the program signaled their interest, they said, “it really comes down to the capability and the willingness of the organization as a whole ...as long as no one backs out.”

To make internal changes as far as behavior or practices, that would need to come from leadership, either ...the executive director and the board of directors or board of advisors. ... I don’t feel like I’m the one to implement enough changes. I can ...change the way I do things, but for organization change it would need to be more than just myself.

Although Scholars highlighted their awareness of the limitations of their power within their organizations, they also explored how their power had shifted. For example, they talked about having a little more respect in the agency or organization because they had developed a knowledge base that their superiors did not have. Scholars hoped that the program would prepare them to articulate their learning to get “buy-in” from those who could facilitate changes. Scholars felt CRSI had “a ton of potential” to increase research capacity but change would happen only “if there’s the money for it.”

In their interviews, supervisors recognized the limitations of Scholars’ power and said it was “essential” that the program required the Scholars were accompanied by senior administrators from their organizations. This, they said, showed the program was “serious business,” and that program would be high-quality. They also admitted that changing organizational culture around research required incremental changes that “touch” people to get them interested, rather than changes “from on high.” Supervisors, though enthusiastic about the program, felt they needed more to build capacity in their organizations. One supervisor’s comments were representative of others’, saying, “I wish I could have put a team in. ...I think a team of two would be better.” Some supervisors wished the program had required them to be more engaged in the program. “Demanding more of me and my colleagues can only enrich the program.”

### 2.10.2. Institutional priorities crowded out research

In their interview, the co-directors commented on how they had assessed organizational commitment to the program at the beginning. “One of our big lessons was that ... we underestimated the factor of organizational preparedness and commitment. ...That’s a hard thing to measure and ...we did site visits because we knew that part would be important.” They emphasized that organizations’ ability to “make space” for the program was essential. Asked about how their learning would affect their organizations, Scholars felt their training had “definite potential,” to affect their organization, but asserted that the organization as a whole needed to “buy-in.” They said that organizational leadership, commitment, and support were needed. Scholars said this

would need to be “Not just the words, but demonstrate[d] in actions.” Scholars gave examples of how they had hoped to share what they learned to generally increase awareness of research and its potential at the organization and/or share information on survey design or other topics relevant to their work and increase this buy-in (at staff meetings or brown bag lunches, etc.), but said that their organizations’ priorities tended to “push out” opportunities for them to connect what they learned to their organization. One Scholar said, “there are a lot of people in the agency who have no idea what I’m doing” and others agreed. Sharing was also challenging, another Scholar said, because “it’s kind of hard to articulate exactly what I do here...because it’s so different from all of the other work that takes place within the organization.” Others also agreed with this.

Although the supervisors recognized that it was important to create a sense of the value of research within the organization, looking back, they identified missed opportunities for bringing the Scholar’s work and experiences in the program to the wider organization and barriers to doing so. Supervisors described their Scholars’ efforts to educate the board about research during brown bag lunches, to “create a thirst” for research, and make them aware their support would be required if they were to continue with research efforts. Supervisors said they had difficulty explaining the program to stakeholders such as the board and community members. They worried, however, that there was neither sufficient interest nor time to commit to even relatively short lunchtime learning opportunities. Admitting that their organizations had challenges regarding time and money, funding situations meant that research efforts would probably be eliminated when funding levels tightened.

Going forward, supervisors suggested that if increasing capacity was the goal, then ideas and direct links between research and practice needed to be made, and also between research and fundraising, to leverage and attract more resources to support research. Another said more concrete suggestions for implementing what was learned and leveraging it would have been helpful. “How do you put this in your grant proposal, or add it in or incorporate it?” One suggested a one-pager could help with their organization’s internal communication about what their Scholar was doing. Despite these challenges, the supervisors recognized other research questions their organizations needed to tackle and worked with their Scholar to explore what next research and critically think about ways research can inform their work would ultimately improve services for the communities they served.

### 2.10.3. *CRSI was a career springboard for Scholars*

The Scholars felt that the training had the potential to expand their career opportunities, either within their current organizations or outside of them.

This is my chance to grow. If I can use this program to grow the agency, then happiness will be abounding. So that’s my goal. ...I’m hoping that the credibility that this program gives me can help influence that.

Scholars were also unsure about the extent to which they would have the opportunity to evolve in their organization and continue to be involved with research after the end of the program. One said, “I’ve really had to change the <agency> position to make it more challenging or kind of more interesting to me” and this was true for other Scholars. Some Scholars noted that they had been uncertain about whether to stay with their organizations before starting the program, but saw CRSI as an opportunity to increase job satisfaction. Scholars generally felt CRSI helped them develop leadership skills. “I have been given an opportunity to show the leadership at my agency what I am capable of, which can be rare in the day-to-day of the nonprofit.” In general, Scholars felt a sense of empowerment. One open-ended comment represented this idea, writing that training built their “confidence as a leader and empowering others to utilize data to identify needs and gaps in research to develop more functional strategic plans.” Other Scholars noted the training,

increased their “capacity as a leader.”

While the supervisors believed their Scholars were committed to their organizations, they also felt that CRSI had allowed the Scholars to “spread their wings,” which was “a calculated risk,” with the possibility the Scholar would “outgrow” the organization. The supervisors said they wished they could offer more to their Scholars in terms of supporting and/or allowing research to continue (and some were actively seeking this out), but at the time of the interview, could not formally commit to that. Uncertain about their abilities to support Scholars’ research interests, supervisors doubted that their Scholars would remain with the organization long term.

### 2.10.4. *Application of Scholars’ training to the organization*

Supervisors’ interview data provided evidence supporting the idea that the program built their organizations’ research capacity. All supervisors said the program had an impact on them. Research, they said, before CRSI, was limited to “evaluation and compliance,” “dry and lifeless,” and was something “other people did.” After the program, however, supervisors said they were able to see both the direct impact the research experience was having on the organization, and the creativity that is possible in research endeavors. Supervisors also said the program gave them a broader view of their organization. They emphasized that their Scholars’ research would be useful, and some felt the findings would have an immediate impact on how the organization functioned, ultimately improving services for the people the organization serves.

In the interviews, Scholars talked about feeling inspired to position themselves and their organizations as more research-focused and felt prepared to interact with their leadership, even being respectfully challenging to help them understand what they were learning and encouraging them to look for innovative approaches to its work. Scholars said the training helped them feel more capable of advocating on a macro level, working with their agency’s funders, and more critically evaluating the tools and reporting funders typically ask for and pushing for “smarter evaluation”. Representative of this idea, one Scholar said she felt well-positioned to play a role in “educating the funders” to better evaluate their work. They noted feeling more comfortable “pushing back” when funders require tools that do not make sense for their community or hinder them from “collecting the data that we really want.”

Other indications that capacity was built was that nearly all Scholars who completed the program remained actively involved with data and research at their organizations as well as engaged with CRHD activities related to community-based research as part of the CBRN. Scholars have engaged in the following research-related activities in their work: outcomes and data-based decision making; navigating research projects that come through the agency; writing research-related grants; and serving as community research partners, consultants, and resources for academics interested in conducting CER. One Scholar represented this range, writing in the open-ended comments, “I am using my skills to write better papers, proposals, conduct literature reviews. ...I expect to submit more papers to scholarly journals.” Another wrote of the concrete impact the training had. “I will be implementing and building our internal evaluation and external relations for community-based participatory research at my agency.” While writing for journals was not a goal for all Scholars, they acknowledged they felt prepared to do it.

Although some Scholars changed jobs, both the organization they left and the new organizations benefited from the training and have stayed involved with the CBRN. In their interview, the co-directors discussed Scholars’ continued involvement in research. Because the CRHD and the Scholars interact monthly through the CBRN, CRHD staff are frequently updated on the Scholars’ activities. At least three agencies that participated in CRSI built specific research, evaluation, or data analysis positions or departments to align with the added skillsets their Scholars had developed, and one Scholar was promoted to executive director of her organization. Other Scholars have moved on to other

roles in different agencies where they're actively using data, with one working as a grant manager, another helping her new organization re-envision how they capture outcomes, and another, half FTE in a research role.

### 3. Discussion

CRSI Scholars reported that the program helped them gain research knowledge and skills, feelings of comfort and confidence about research, they felt more a part of the research community and had a better understanding of how to apply their learning to their CBOs. These changes were facilitated by having a supportive supervisor who actively participated in the program alongside the Scholars. Scholars' perceived increased capacity for conducting research was accompanied by supervisors' reports that the program facilitated changes in how they approached their organizations' work. Scholars also reported broadened networks which nurtured their leadership potential and desire to do more with their jobs, as they felt an increased ability to apply research to their organization's work. Intensive engagement, strong support from their supervisors, mentorship by co-directors, and tailored assistance all facilitated Scholars' positive experiences and development. However, as frontline workers, the Scholars felt they had limited power to guide institutional change to fully translate their increased capacity for research to their CBOs, and their CBOs' priorities often did not prioritize research.

To our knowledge, CRSI is the longest and most intensive training program focused on training employees of CBOs to conduct a high-quality, independent publishable research product directly focused on their organizations to date. Significantly, CRSI, unlike existing programs, was unique in training its Scholars to conduct research without specific academic partners guiding them, though they learned how to partner with academics in the future. CRSI addressed several gaps identified in the literature, including the need for more time to apply learned knowledge to conduct a high-quality, publishable study (Amico et al., 2011; Battaglia et al., 2019; Kegler et al., 2016). The program addressed the need for strong engagement (Battaglia et al., 2019) and need for a longer-term sustainable community research community (Rubin et al., 2012). In the literature, the closest model to CRSI in terms of time and intensive engagement was the community-engaged research training (CERT) program in Arkansas which lasted two full years—one year of didactic training and a second year of mentoring which produced a project (McElfish et al., 2019). While CERT matched CRSI in terms of total length and having a small number of participants (11), it demanded less time per week and trained academic and community partners together. While Amico et al. (2011) focused on community members immediately applying what they learned and practicing skills in a supportive environment, unlike CRSI, it was much shorter and focused exclusively on one research method.

Our findings of increases in self-reported knowledge, skills, comfort, and confidence around research are consistent with the literature on previous research capacity training programs (Carroll-Scott et al., 2012; Coombe et al., 2020; Cunningham-Erves et al., 2020; D'Agostino McGowan et al., 2015; Hayes et al., 2020; Jewett-Tennant et al., 2016; McElfish et al., 2019; Rubin et al., 2012). Training community members on "baseline knowledge" including "research jargon, technical skills, and a sense of the 'frameworks' and 'principles' that guide research projects" (Rubin et al., 2016, p. 7) is important to demystifying research and shifting "the culture of power" (Rubin et al., 2016) in academic/community partnerships. Bridging the academic and community divide is essential and requires closely understanding community perspectives and needs. Training CBO employees to conduct (their own) research has the potential to change the way CBOs understand and approach research within their organizations. It also avoids the pitfall of community/academic partnerships dissolving if a partnership does not "click", interests diverge, or an academic partner's university does not appropriately recognize community work.

CRSI supervisors were also important players. CRSI Scholars noted that their power was limited and their supervisors held more sway in effecting change, consistent with previous literature (Andrews et al., 2013; Cheadle et al., 2002; Flicker et al., 2009; Israel et al., 2010; Oetzel et al., 2015). Supervisors also suggested their involvement in CRSI helped them see their organizations differently and think more critically about their work. Consistent with Israel et al. (2010) and Seifer (2006) Scholars recognized the importance of having "the right people around the table" (Israel et al., 2010, p. 1030), and more effort was needed to engage CBO leaders at higher levels of the organization for greater impact.

#### 3.1. Scholars' expanded networks and prospects

Scholars felt their new knowledge, both in terms of skills and in understanding research culture, gave them more credibility within and outside their organizations also shifted their career prospects. Scholars sought to remain in CBOs (none planned to become academics or work within academics), and either grow within their current organization or work with organizations who would value their new skills and where they could actively apply their learning. The CRHD has provided multiple opportunities for Scholars to remain engaged with research even while remaining in their home organizations. Five years later, Scholars have continued to engage with the CBRN at its monthly meetings, have expanded their research networks, and actively partner with new academic investigators and community agencies. All Scholars, even those that have changed organizations, have the leadership "sign off" to attend CBRN meetings and represent the agency's research interests. This has been a truly impressive benefit, as the agencies with a Scholar on staff more easily navigate research consulting and subcontracts than other organizations with which the CRHD has worked.

As the CRHD worked to develop its National Institute on Minority Health and Health Disparities (NIMHD) Center for Excellence, CRSI represented a major financial investment intended to lay the groundwork for long-term community engagement. We not only anticipated Scholars would complete their two-year training and project as part of CRSI but also that they would become community research ambassadors for their agencies and agencies in the Cleveland area. After CRSI, we planned to grow community-based disparities research through training early-stage academic investigators to work with communities, so developing a group of Scholars well-versed in community-academic partnerships to advise such efforts would be beneficial. These plans were realized, and Scholars engage with these projects regularly through the CBRN, sharing their experiences and lending insights to CER projects. The CRSI Scholars have proven to be vital for the CRHD's programming and a hallmark of CER at Case Western Reserve University and MetroHealth. Scholars now have enough experience to train their CBO peers in a less intensive workshop model that may be more appropriate for CBOs that would like a simple introduction to research, obtain basic skills, and become prepared to partner with academic or other researchers. CRSI Scholars have become, as Hayes et al. (2020) suggested, community research champions and vital members of the research community. Having members of CBOs teach other members of CBOs is an especially important benefit since so many models involve community members learning from academics whose language and culture differ from CBOs' (Rubin et al., 2016; Tumieli-Berhalter et al., 2007). Actively seeking and valuing Scholars' perspectives on CER has created a sustainable and equitable bidirectional partnership between Scholars and academics locally.

#### 3.2. Implications for future programs

Ultimately, future programs need to consider the depth and breadth of their desire for research capacity. Committing a program to a longer time frame, with a safe, supportive infrastructure (Coombe et al., 2020; Israel et al., 2010; Woods-Jaeger et al., 2021) may be key to building

long-term organizational research capacity. Future programs should consider the need for balance between the desire to train a larger number of CBO employees which would also guard against job transitions (common in CBOs) and training a smaller number of people in more depth. While training many people across may seem appealing to foster a stronger collective and perhaps more sustainable impact, challenges could include the need to identify more than one interested staff person as well as covering agency work for two individuals time in the program. Similarly, although having more than one staff person trained could have created even more energy and investment from leadership at the organization (Seifer, 2006), and a backup plan if a trainee left the agency. However, barriers might include the inability for more than one employee to obtain be away from their office for large amounts of time. One possible way to address the issue of time away from the office would be ensuring that CRSI Scholars had more opportunities for peer-to-peer teach-backs. The programs could also work to help organizations understand the value of this type of learning to further support and build capacity within the CBO. Scholars' learning should have been more widely disseminated (to their boards, for example), and future programs should emphasize the importance of trainees actively sharing their learning with their organizations. Ultimately, organizations should consider the benefits of their investment. Building capacity may enhance CBOs' standing in the community, as they become recognized for conducting high-quality work supported by research evidence (Bilodeau et al., 2009; Lucero et al., 2018; Oetzel et al., 2015).

### 3.3. Strengths and limitations

An important strength of this work is the multiple methods employed to gather information about Scholars' experiences and the potential impact the training had on the organization. Such methodological triangulation allows the data to be explored with greater depth, over time, and within the appropriate context, giving us more confidence in the findings. The study has several limitations to consider in interpreting the findings. First, the CRSI Scholars' education levels were generally high, with nearly all having at least bachelor's degrees, so the findings might not apply to participants with less education. There is also a potential risk of social desirability bias in the interviews because the Scholars were familiar with the interviewer who attended some of their sessions. However, the interviewer was not intimately involved in the day-to-day programming and was enough "outside" their group that this was not a major concern. Another limitation of the work is the use of an unvalidated questionnaire. Because the questions were tailored specifically to the curriculum and program needs, there were no existing validated measures that fit the program. Finally, the evaluator was not hired until the program had already gotten underway. The baseline survey was developed and administered after participants had begun the training, so the survey findings we have reported here may be more modest than if we had administered them before the Scholars began.

A specific goal was publishing in an academic journal, and a curriculum training topic explored how to develop a journal manuscript. In retrospect, we acknowledge developing a publishable manuscript reflected our bias as academics in seeing this product as highly desirable. Even given the time CRSI spent on training about manuscript development and journal selection, publication was not attainable or desirable for all Scholars. However, we felt that going through the process of selecting a journal, formatting a manuscript, and submitting it to a journal, regardless of the outcome, was important to understanding academia. While some Scholars felt more strongly about being published as part of their professional development and invested the additional time for resubmission, others were satisfied with abstract/poster presentations and results from the project being implemented in their organization. Future programs may consider valuing a range of research products.

### 3.4. Lessons learned and conclusion

The CRSI program was an innovative and unique model of a university-community partnership focused on changing CBOs' culture around research. The model hinged on the intense engagement of its Scholars, involved supervisors from the participating organizations, an intentional and focused curriculum with useful deliverables, meaningful networking to build research connections in the community, and strong program leadership. The intensive learning and weekly engagement of CRSI led to the building of an active, sustainable community-based research network that includes community members and academics, networking and new career opportunities for Scholars, greater research engagement in participating organizations, and changes in how CBOs approach research, collect data, deliver services, and evaluate their work. A program like CRSI would be well-suited for an organization that can allow their employees the time away from the office for training and has a commitment from leadership to ensure that the learning from the training is actively incorporated into the organization. Future similar training programs might consider changes such as providing training to more than one organization employee, crafting organizational plans with leadership (Israel et al., 2010; Seifer, 2006), and providing technical assistance for the organizations to learn about innovative ways to locate (and allocate) research funding into budgets. Building research into CBOs' cultures may ultimately save money (that might have otherwise been spent on outside evaluators or technical assistance), time, and help CBOs focus their work in an increasingly outcomes-driven, accountability-focused non-profit environment.

### CRedit authorship contribution statement

**Cyleste C. Collins:** Conceptualization, Investigation, Data curation, Formal analysis, Methodology, Writing – original draft, Writing – review & editing. **Jacqueline Dolata:** Project administration, Conceptualization, Formal analysis, Roles/Writing – original draft, Writing – review & editing. **Earl Pike:** Project administration, Conceptualization, Writing – review & editing. **Ash Sehgal:** Funding acquisition, Project administration, Conceptualization, Resources, Supervision.

### Declarations of interest

None.

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