

## FULL-LENGTH ARTICLES

# Community-Based Participatory Research: Insights, Challenges, and Successes From the Perspectives of Frontline Recruiters and Investigators

Nita Vangeepuram<sup>1</sup>, Kezhen Fei<sup>2</sup>, Crispin Goytia<sup>1</sup>, Devin Madden<sup>1</sup>, Giselle Corbie-Smith<sup>3</sup>, Carol R. Horowitz<sup>4</sup>

<sup>1</sup> Institute for Health Equity Research, Icahn School of Medicine at Mount Sinai, <sup>2</sup> Cytel, Inc, <sup>3</sup> University of North Carolina School of Medicine, <sup>4</sup> Institute for Health Equity Research, Icahn School of Medicine at Mount Sinai

Keywords: community-based participatory research, recruitment and retention, investigators, research staff, health disparities research, best practices  
<https://doi.org/10.35844/001c.77399>

---

## Journal of Participatory Research Methods

Vol. 4, Issue 2, 2023

---

Employment of community-based participatory research (CBPR) strategies has helped address limitations of traditional research approaches, but we still do not have a full understanding of how study teams successfully conduct research with populations who experience health disparities. To gain insights into the unique successes and challenges of research teams conducting National Institutes of Health (NIH) funded community-engaged research studies, we conducted an online survey with 120 investigators identified through NIH RePORTER and 106 members of the academic study team (research staff) who assisted with recruitment. We examined descriptive statistics and used Chi-square analysis to compare responses between investigators and staff. Most studies targeted low-income, racial/ethnic minority populations and reported high recruitment and retention rates. The most common collaborators were community-based organizations, and the most common study purpose was to evaluate an intervention. There was generally consensus between investigators and staff about effective recruitment and retention strategies, barriers, and facilitators. However, there were also some critical differences, including perceptions about community partner roles and the value of staff input into study design and methods. After the presentation of our key findings, we share best practices for successful recruitment and retention in health disparities research using CBPR approaches.

### Introduction

Socially disadvantaged populations experience a significantly greater burden of disease and have fewer opportunities to achieve and maintain good health (Braveman & Gottlieb, 2014). Research informing effective interventions to decrease health disparities is imperative, but recruitment for these studies is particularly challenging because they often target high-risk populations that are less likely to participate in research due to inadequate or ineffective outreach strategies, mistrust, fear of stigma or potential harm, cultural factors, lack of awareness of research opportunities, competing priorities, and other barriers (Bonevski et al., 2014). Thus, one crucial part of this work is having a better understanding of effective recruitment and retention strategies for these diverse populations.

There are several limitations to traditional research approaches when targeting populations that experience health disparities and inequities. First, traditional approaches usually lack consideration of complex health conditions, understanding of individual and family needs and motivations, and cultural considerations that can impact health outcomes (Berge et al., 2009; Domecq et al., 2014; Holkup et al., 2004; Horowitz et al., 2009). Further, a

lack of research transparency and a historically limited focus on local needs may contribute to poor recruitment and retention of underserved populations (Nyden, 2003).

Community-engaged research aims to address some of these limitations and spans a continuum from consultation to coordination to true collaboration (Goodman & Sanders Thompson, 2017). Community-based participatory research (CBPR) is a partnership research approach in which community members, organizational representatives, and researchers contribute their expertise to research to improve health outcomes and quality of life and affect positive community change (Salimi et al., 2012; Tapp et al., 2013). CBPR helps address the limitations of more traditional research approaches, often by adopting innovative strategies for study recruitment and retention that are informed by the whole research team. Previous review studies have examined strategies for recruitment and retention of populations that experience health disparities. One systematic review that examined the relative effectiveness of strategies for recruiting individuals from racial/ethnic minority backgrounds concluded that the active involvement of existing community stakeholders was critical (Yancey et al., 2006). Another systematic review of strategies for improving research with socially disadvantaged groups similarly found that researchers often collaborate with trusted community organizations to engage these groups (Bonevski et al., 2014). Finally, a systematic review of clinical trials that employed CBPR methodologies found that more than 75% of these studies successfully recruited and retained racial/ethnic minority populations and achieved significant intervention effects on clinical and behavioral outcomes (De las Nueces et al., 2012).

Strategies for recruitment and retention of study participants in CBPR studies are often informed not only by community partners, but also by research staff (i.e., recruiters, research assistants, coordinators, and project managers) working on the frontlines who have more interactions with potential study participants and hold unique perspectives about how to engage and retain participants. However, these strategies may not be fully understood and implemented in research communities because published literature is often written from the perspective of investigators (i.e., principal investigators, co-investigators, and project/program directors). In our review of the literature, we could find no evidence of research staff contributions in this area and therefore may be missing key insights from recruiters and other staff. Identification of recruitment and retention opportunities, challenges, and successes from both research staff and investigators' perspectives may be important in increasing the success and impact of future studies. Community organizations and stakeholders are recognized as important gatekeepers between investigators and research participants (Bonevski et al., 2014). Research staff may also play this pivotal role, and understanding how they are solicited for input may be critical to refining research processes. The aim of this study was to obtain key insights from investigators and research staff involved

with recruitment about challenges and successes they have experienced in using CBPR for recruitment and retention of populations experiencing health disparities. Our study objectives were to:

- Conduct surveys to assess and compare recruitment and retention challenges and successes from the perspectives of research staff and investigators.
- Assess the level to which research staff are invited to contribute their ideas to improve recruitment and retention.
- Share best practices for successful recruitment and retention using CBPR.

## Methods

### Survey Development

As the focus of this study was to obtain feedback from academic members of study teams in different roles, our team included investigators, project managers, and clinical research coordinators. For the purposes of this survey, CBPR was defined as a research approach in which researchers and community members collaborate as equals in the research process, while community-engaged research was the broader term used to describe a research process in which groups of people affiliated by geographic proximity, special interests, or similar situations worked collaboratively. We first identified potential survey domains and questions based on the literature review and the expertise of our team members. Key domains included study approach, study purpose/scope, target population characteristics, community collaborators, recruitment goals, recruitment barriers and facilitators, qualities of successful recruiters, staff training and support, incorporation of staff feedback, retention rates, factors impacting retention, and respondent demographics. We pilot-tested the survey with research faculty and staff at our institution. We then entered the survey on [SurveyMonkey.com](https://www.surveymonkey.com) and created two separate links: one for research staff and one for investigators.

### Recruitment

We aimed to recruit investigators and research staff involved in ongoing CBPR studies or studies using other forms of community-engaged research methods funded by the National Institutes of Health (NIH). We compiled a list of eligible studies by searching funded studies on the NIH RePORTER website using the search terms “community-based participatory research,” “community-based research,” and “community-engaged research.” Study team members then manually reviewed project abstracts to select projects that used CBPR or other community-engaged research methods and included populations experiencing health disparities. We identified eligible studies and invited all principal investigators to participate and to identify co-investigators and research staff for outreach. We asked potential participants eligibility questions to ensure that they met our inclusion criteria. Participants had to

be  $\geq 18$  years at the time of consent, part of a research team for at least six months (not on a per diem basis), able to read/write in English, and be without cognitive or physical impairments that would preclude completion of the survey.

We emailed study principal investigators (PIs), invited them to complete the online survey, and asked them to forward the survey link to co-investigators and senior collaborators. Because there is no centralized database with contact information for research staff, we also asked PIs to forward an email with a separate survey link to staff involved with study recruitment or to provide staff contact information so that we could send the link to them directly. Once participants clicked on the link, they were directed to a cover page where they were required to click “Consent” to continue with the survey. After survey completion, participants were asked to submit their e-mail addresses for distribution of incentives (\$20 electronic gift cards). Not submitting a valid email address did not disqualify individuals from participating but prevented them from receiving compensation. We did not ask participants for their name, other identifiers, or protected health information. We received ethical approval for the study from our Institutional Review Board (IRB) (the Program for the Protection of Human Subjects) (approval # 05-0463).

### **Data Analysis**

Descriptive statistics including means, standard deviations, frequencies, and percentages were used to describe the study participants. Given the distribution of some of the variables with some cell count sizes being too small for comparative analyses, answer options were collapsed in order to make valid statistical comparisons. Chi-square statistics were used to make group comparisons. All statistical tests were two-sided, and the significance level was set at 0.05. All analyses were performed using SAS 9.4 (SAS Institute Inc., Cary, NC).

## **Results**

### **Characteristics of Survey Respondents**

We identified 119 eligible studies based on our search criteria and project abstract review. The 226 completed surveys included 120 (53%) investigator surveys and 106 (47%) research staff surveys. Characteristics of survey respondents are presented in [Table 1](#).

There were significant differences between investigators and research staff in age, gender, race/ethnicity, years of experience, and number of studies in which they were involved. Of note, nearly half the investigators self-reported their race/ethnicity as white compared to only 20% of the research staff. Of those who completed the investigator survey, 55% had more than 10 years of experience in their current role, and 60% had worked on 10 or more research studies. Of those completing the research staff survey, 41% were project managers, 38% were research coordinators, and 16% were full- or part-time recruiters. About half of the research staff had fewer than five years of experience in their current role.

Table 1. Participant Characteristics

	Research Staff N=106	Investigators N=120	p
Age	42 ± 11	50 ± 11	<.0001
Gender			0.0003
Male	9 (10%)	31 (32%)	
Female	80 (90%)	66 (68%)	
Race/Ethnicity			0.0009
White	18 (20%)	46 (47%)	
Black	32 (36%)	18 (19%)	
Hispanic	20 (22%)	12 (12%)	
Asian/Pacific Islander/Native	10 (11%)	13 (13%)	
Other	9 (10%)	8 (8%)	
Language Spoken Other than English			
Spanish	27 (25%)	20 (17%)	0.1389
Other	8 (8%)	13 (11%)	0.4932
Years of Experience			<.0001
< 1 Year	6 (7%)	3 (3%)	
1-2 Years	10 (11%)	5 (5%)	
2-5 Years	30 (34%)	14 (14%)	
5-10 Years	22 (25%)	22 (23%)	
> 10 Years	21 (24%)	53 (55%)	
Number of Studies			<.0001
1-3	37 (42%)	4 (4%)	
4-6	26 (29%)	14 (14%)	
7-9	8 (9%)	21 (22%)	
10+	18 (20%)	58 (60%)	
Role			-
Principal investigator		84 (87%)	
Co-Investigator		9 (9%)	
Program/Project director		4 (4%)	
Project manager	39 (43%)		
Project coordinator	34 (38%)		
Full/Part time recruiter	14 (16%)		
Other	3 (3%)		

## Study Information

According to the investigator survey, 68% of the studies used a CBPR approach, 22% used a community-engaged research approach, and 9% were studies conducted in community settings. Study purpose included screening (detection of disease or disease risk) (19%); intervention (implementing treatments or strategies to improve outcomes) (77%); and assessment (collection of information from study participants through surveys, medical records, biologic measurements, etc.) (38%). The most common assessments included surveys (88%), in-depth interviews/focus groups (68%), biological measurements (35%), and laboratory tests (30%), with fewer studies including imaging tests (3%), medical record abstractions (19%), and environmental data collection (23%). In terms of collaboration during study development, 82% of investigators reported working with community-based organizations, 41%

Table 2. Perceptions about research stages in which community partners were involved

	Research Staff	Investigators	p-value
Recruiting subjects	87 (82%)	102 (85%)	0.5921
Designing study methods/procedures	50 (47%)	93 (78%)	<.0001
Collecting data	62 (58%)	85 (71%)	0.0689
Planning for data collection after grant is awarded	37 (35%)	85 (71%)	<.0001
Developing an intervention	52 (49%)	85 (71%)	0.001
Disseminating research findings	48 (45%)	88 (73%)	<.0001
Developing a strategy for disseminating results	41 (39%)	79 (66%)	<.0001
Deciding what to study	38 (36%)	67 (56%)	0.0026
Writing grant application	31 (29%)	53 (44%)	0.0205
Interpreting results	32 (30%)	79 (66%)	<.0001
Analyzing data	22 (21%)	37 (31%)	0.0963

with community-based clinics, 29% with faith-based organizations, and 19% with schools. Other collaborators included city/state agencies such as health departments, American Indian tribes/organizations/governments, community members, housing developments, businesses, patients, and health providers. Investigators and staff had different perceptions about the stages of research in which community collaborators were involved. While most investigators reported high levels of community involvement in all stages of research except grant writing and data analysis, most research staff only perceived high levels of community involvement in recruitment ([Table 2](#)).

Studies included mostly female participants (reported by 61% of investigators) or an even distribution of males and females (reported by 36% of investigators). Most studies included adults ages 30–65 years and 83% of studies targeted racial/ethnic minority populations. The most common racial/ethnic minority groups included were Black/African American (58%) and Hispanic/Latino American (46%) with fewer studies including American Indian/Alaska Natives (14%) and other minority groups. Other than English, the most common language spoken by study participants was Spanish (in about half the studies), though individual studies included speakers of many different languages (European, Asian, African, and Native/indigenous dialects). The most common included populations that experience health disparities were low-income (81%), non-English speaking (37%), minors (30%), and the elderly (28%), with far fewer including populations such as adults unable to consent, pregnant women, physically/mentally disabled, or homeless individuals. The most common setting for studies was urban (71%) followed by rural (38%) and suburban (22%). Target U.S. geographic regions included the Northeast (29%), South (33%), Midwest (24%), and West (23%).

### Recruitment Goals

Reported recruitment goals ranged from 15 to 5,000, with a median of 350 (IQR 200-600). About two-thirds of respondents reported that recruitment was complete and one-third reported that recruitment was ongoing. While nearly two-thirds of investigators reported that they met their initial



recruitment goal, about 40% of respondents reported that their recruitment goals changed over time. Respondents were asked an open-ended question about reasons for changes in recruitment goals. Commonly cited reasons included statistical/data considerations, adjustments to the study protocol, recruitment/retention challenges, and funding issues. Most changes resulted in a smaller recruitment goal over time, but some respondents reported that recruitment levels exceeded expectations and increased their recruitment target or revised/added studies.

### **Recruitment Facilitators**

Investigators perceived recruiters/staff and involvement of community-based/faith-based organizations to be the most important factors in facilitating study recruitment, while research staff perceived recruiters/staff as the single most important factor. Other factors ranked highly in importance by both groups included adequate financial incentives and accommodation of potential participants (e.g., flexible times or location close to home or work). Factors that were not perceived to be as important were advertisements, enrollment of participants' friends or family members, and involvement of neighborhood medical clinics.

Investigators and research staff were asked to rank important qualities of a successful recruiter. Among the top qualities chosen by both investigators and staff were the ability to engage participants, belonging to the same cultural/ethnic background as the study population, living in the community, being comfortable in the community, being knowledgeable about the study and the community, having strong communication skills, and being charismatic/friendly. An additional quality deemed important by investigators was having previous experience with CBPR/community-engaged studies. Staff identified the ability to multitask as an additional important skill.

### **Recruitment Barriers**

Only about 29% of investigators reported that they were not able to meet recruitment deadlines. Respondents were then asked an open-ended question about reasons for being unable to meet deadlines. Reasons cited included high no-show rates, poor access to recruitment sites, difficulty recruiting in certain sites, shortened grant timelines, recruitment taking longer than expected, financial difficulties among study participants, adjustments to the study protocol, IRB issues, staff turnover, and season/weather.

When asked how difficult it was to recruit participants, 46% of investigators said it was somewhat or very difficult compared to 60% of research staff,  $p=0.048$ . The top two factors perceived by both investigators and research staff to deter people from enrolling in studies were time commitment and lack of interest in research participation. Other commonly cited deterrents were competing demands, "don't see personal benefit to be gained," "don't care to participate in research," transportation issues, mistrust of research, poor understanding of the study components and/or requirements, and lack of knowledge about the research topic. As seen in [Table 3](#), investigators were more

Table 3. Top factors perceived to deter people from enrolling into studies

	Research Staff	Investigators	p-value
Lack of knowledge about the research topic and/or disease	25 (24%)	21 (18%)	0.2569
Time commitment	80 (75%)	76 (63%)	0.0489
Poor understanding of the study components and/or requirements	27 (25%)	19 (16%)	0.0725
Lack of interest in research participation	51 (48%)	57 (49%)	0.9266
Transportation issues/limited mobility	21 (20%)	41 (34%)	0.0158
Competing demands	45 (42%)	67 (56%)	0.0447
Don't see personal benefit to be gained	35 (33%)	34 (28%)	0.4453
Don't care to participate in research	30 (28%)	36 (30%)	0.7793
Mistrust of research	27 (25%)	35 (29%)	0.5344

likely than research staff to identify transportation and competing demands as recruitment barriers, while staff were more likely than investigators to identify time commitment as a barrier.

Factors that were not perceived to be barriers were unwillingness to enroll unless guaranteed to receive the intervention, fear of finding out about health risk/disease status, physical impairment, revelation of undocumented status, dislike/distrust of the research team or institution, and literacy/religious/cultural/language issues.

In addition, at least 25% of investigators and staff felt that high turnover/shortage of staff and inadequate time to meet recruitment goals made recruitment somewhat or very difficult. Research staff — but not investigators — also felt that lack of community engagement and limited inclusion criteria were significant barriers. Factors less likely to be perceived as barriers included inadequate training of staff, inability to relate to the target community, inability to communicate in the participants' language, lack of safety/comfort in the field, lack of familiarity with the recruitment site, rules of the recruitment site, competing studies in the area, inflexible times to accommodate study participants, limited staff knowledge of the study to answer participants' questions, inadequate stipends/incentives, and time needed to obtain informed consent. When asked about strategies implemented to overcome recruitment barriers, the most commonly reported were combining recruitment with community events, obtaining referrals from friends and family, obtaining referrals from community partners, encouraging participants to tell others about the program, and structuring recruitment during off-peak times.

### **Staff Training, Support, and Feedback**

About 77% of research staff received one or more days of training to develop recruitment skills. Commonly reported training techniques included observation and feedback, roleplaying, reading protocol materials, and working with experienced recruiters. Seventy-three percent of investigators reported that they always or often provided guidance/support for their research staff to



overcome recruitment difficulties while 67% of the research staff reported that they always or often received such support. Most investigators (68%) met with their research staff every one to two weeks.

Investigators reported that they solicited feedback from research staff about the study prior to the start of the study (65%), during the study (81%), and after study completion (44%). When research staff were asked at what point their feedback was solicited, 57% said this occurred during the study while fewer reported that this occurred prior to the start of the study (26%) or after study completion (7%). When asked about the extent to which research staff input was incorporated into the study, more investigators than staff reported that this happened “very much” (86% vs. 60%,  $p < .0001$ ). More investigators than research staff also reported that staff input resulted in a change in the study protocol (64% vs. 40%,  $p = 0.0002$ ). Respondents were asked an open-ended question about specific changes made to the protocol as a result of staff input. Reported changes included more flexible recruitment and study visit schedules, improved communication with potential study participants, expansion of recruitment sites, changes in study personnel and their roles, revision of consenting procedures, alteration of inclusion/eligibility criteria, simplification of protocol logistics, changes to the study intervention, providing better incentives, and obtaining more participant feedback.

### **Retention**

The most commonly reported highest retention rate was 81-90%, and the most commonly reported lowest retention rate was 61-70%. About 75% of the studies included multiple follow-up assessments, with most of those occurring between 3 and 12 months after enrollment. We asked respondents to rate the degree to which particular strategies impacted retention. Factors considered by investigators and research staff to “very much” impact retention included: accommodation of participants (e.g. flexible times, home visits, location, and adequate transportation to research site) (80%); having a positive view of the study (78%); relationships with the study team (75%); perceived benefit of the study (74%); adequate financial incentives (59%); regular phone calls from study staff (55%); and involvement of community-based and/or faith-based organizations (52%).

### **Discussion**

CBPR studies rely on community stakeholders to inform study development and implementation, including effective recruitment and retention strategies. While process evaluations to assess the CBPR process rightfully include important perspectives from community partners, they do not often explore viewpoints from different members of the study team (Caldwell et al., 2015; Horowitz et al., 2009). We recruited study investigators and other academic members of the study team who were involved in NIH-funded CBPR studies or studies using other forms of community-engaged research. Research staff were more racially/ethnically diverse than investigators, which might be relevant as staff are often on the frontlines in communities

leading study recruitment efforts. Indeed, most studies aimed to recruit racially and ethnically minoritized populations and reported high recruitment and retention rates. The most common collaborators were community-based organizations and the most common study purpose was to evaluate an intervention.

Study investigators and research staff mostly agreed about effective recruitment strategies and facilitators. For example, both groups reported that adequate financial incentives, flexibility in study visit timing and location, involvement of community-based organizations, and having the right recruiters were the most important factors in facilitating study recruitment. Our findings align with previous studies that have similarly recognized the importance of collaboration with key community stakeholders to gain unique insights about the community, develop appropriate strategies to access potential study participants, establish trust and rapport, engage in shared decision making, and build capacity (Fortune et al., 2010; Harvey et al., 2009; Ibrahim & Sidani, 2014; Kamanda et al., 2013; Pakhale et al., 2016; Redwood et al., 2010; Rhodes et al., 2018; Savage et al., 2006; Sheikhattari et al., 2016; Tanjasiri et al., 2011, 2015). These prior studies also emphasize the importance of providing appropriate compensation/incentives, employing ethnically and culturally diverse staff from the local community and from backgrounds similar to those of potential study participants, and having staff who form personal connections and are persistent, flexible, and accommodating (Fortune et al., 2010; Harvey et al., 2009; Ibrahim & Sidani, 2014; Kamanda et al., 2013; Pakhale et al., 2016; Redwood et al., 2010; Rhodes et al., 2018; Savage et al., 2006; Sheikhattari et al., 2016; Tanjasiri et al., 2011, 2015). In addition to these factors, we obtained more detailed information than previous studies from both the investigator and research staff perspective about other specific qualities of successful recruiters.

Study investigators and research staff also provided similar reasons for being unable to meet recruitment deadlines and mostly agreed on important recruitment barriers. Similar to findings from a systematic review about recruitment of socially disadvantaged groups (Bonevski et al., 2014), the investigators and research staff who participated in our study identified lack of trust in research, lack of perceived benefit for participation, lack of understanding of research, and limited inclusion criteria as recruitment barriers. Additional perceived barriers in our study included transportation/mobility issues, lack of knowledge about the disease/research topic, and high turnover/inadequate recruiters. However, the most important barriers identified by both investigators and research staff in our study but not mentioned in the prior systematic review (Bonevski et al., 2014) were time commitment, competing demands, and a simple lack of interest in research participation. Also, unlike the prior systematic review (Bonevski et al., 2014), we did not identify the following factors as significant recruitment barriers: fear of authority, perceived harms of research, mistreatment/exploitation, cultural beliefs, gender roles, age-related issues, stigma/fear, and poor communication

about research from health care providers. Because CBPR is grounded in equitable collaboration with stakeholders who have an intimate knowledge of their community, building on community strengths and assets, and building trust, it is likely that the use of CBPR approaches addresses many of these previously identified barriers related to fear, cultural issues, and lack of familiarity with the local community (Israel et al., 1998, 2005).

Investigators and research staff also largely agreed on factors that impacted retention. Similar to other studies, they cited the importance of having a convenient day/time and location for study activities, the flexibility of study staff, collection of extensive contact information and frequent outreach to study participants, adequate compensation for participation, having a positive view of the study, and perceived benefit of the study (Bonevski et al., 2014; Rhodes et al., 2018). In addition to these factors, investigators and staff in our study identified other important factors for successful retention including having strong relationships with the study team and involvement of community-based and/or faith-based organizations.

There were some notable differences in investigator and research staff survey responses in this study. First, investigators and staff had different perceptions about involvement of community collaborators, with investigators reporting that community partners were involved in most stages of the research while staff only perceived high levels of community involvement in recruitment. Our findings align with those from a systematic review of CBPR clinical trials which found that most studies reported community involvement in identifying study questions, recruitment, intervention development and delivery, data collection, and formation of community advisory committees, but very few of the studies cited community involvement in interpretation or dissemination of findings (De las Nueces et al., 2012). Lower levels of community involvement with grant writing, data analysis, and dissemination of research findings may be due to community partners having less knowledge and experience in these areas (De las Nueces et al., 2012). We hypothesize that there were varying perspectives about community involvement between investigators and staff because investigators often have strong, long-standing relationships with community collaborators, work with them on multiple research projects, and interact with them regularly during grant applications, at stakeholder board meetings, and throughout the research process. On the other hand, while research staff know the community, are comfortable with the community, and may be from similar backgrounds as community members, they may not regularly engage with specific community-based organizations outside of the recruitment process.

The other major difference between investigator and research staff survey responses was related to the extent and impact of staff feedback. While most investigators reported that they solicited feedback from recruiters/staff before, during, and after the study, staff were less likely to report that their feedback was requested at each of these points. Investigators were also more likely to report that research staff input was frequently incorporated into the study

and resulted in changes to the study protocol. These findings imply that investigators value staff feedback and input to a greater extent than what staff perceive. Investigators may consider more directly communicating to staff the importance and value of their feedback and how this input affects studies. This may be accomplished through a systems-thinking approach (Arnold & Wade, 2015) in which all members of the research team connect, interact, and impact study processes. This approach may be operationalized by iteratively using prompts to guide team members in setting goals, identifying barriers/obstacles, creating timelines, and outlining specific activities to achieve goals (Hinken, n.d.). Application of CBPR principles throughout this process (e.g., emphasizing the relevance of staff-identified challenges, building on their strengths and resources, and promoting bidirectional learning), would also allow for the removal of hierarchies and power dynamics often at play within research teams to authentically invite staff perspectives and input (Israel et al., 2005).

Finally, previous studies have not examined perceptions about research staff training and support from both investigator and staff perspectives. In this study, most investigators reported that they provided guidance and support for their recruiters/staff to overcome recruitment difficulties and most recruiters/staff reported that they received such support.

### **Limitations**

Although our sample size was fairly large, we might not have captured all relevant perspectives. As with all survey research, our findings may be subject to recall, non-response, and response bias. We recruited research staff through study principal investigators which might have led to selection bias in which staff were invited to complete the survey and in their responses. As this was an investigator- and staff-facing survey, we may not have captured important community perspectives. In addition, since we conducted univariate analyses to compare responses between investigators and research staff, we did not adjust for any potential confounders. While we generally examined recruitment and retention barriers and facilitators in CBPR studies, we did not collect information about the perceived success of specific recruitment strategies or how or why certain strategies were more successful. Other studies found that some effective strategies include direct interactions between research personnel and potential study participants, collaboration with community leaders, recruitment through healthcare providers and systems, snowballing, use of printed materials and broadcast media, social marketing, and personal referrals (Ibrahim & Sidani, 2014; UyBico et al., 2007).

Based on our findings, we developed the following best practices for the recruitment and retention of participants for health disparities research using CBPR approaches:

1. Investigators should solicit feedback from research staff before, during, and after study implementation to ensure that their valuable input is considered in planning and adapting research processes. Investigators should make clear to staff that their perspectives are important and share how their feedback is incorporated.
2. Research staff should interact with community partners in phases of research beyond recruitment (e.g., development of research questions and protocols, data analysis, and interpretation and dissemination of findings) to increase collaboration throughout the study process.
3. The most important factors to consider for recruitment include adequate financial incentives, flexibility in study visit timing and location, involvement of community-based organizations, and employing effective recruiters.
4. Study teams should carefully consider whom to employ as recruiters. Whether recruiters are from community organizations (e.g., community health workers or navigators) or are part of the academic team, qualities of a successful recruiter include: ability to engage participants, being from the same cultural/ethnic background as the study population, living in the community, being comfortable in the community, being knowledgeable about the study and the community, having strong communication skills, and being charismatic/friendly.
5. Study teams should check in regularly about recruitment progress and challenges, collaboratively develop strategies to address barriers, and work with community stakeholders to determine how to increase understanding and interest in research and the best way to engage populations without requiring a lot of their time.
6. Successful strategies to overcome recruitment barriers include combining recruitment with community events, disseminating study information through trusted sources, encouraging participants to tell others about the program, and conducting recruitment events and study visits at convenient times and locations.
7. Strategies to promote high retention rates should include strong relationships between participants and the study team, involvement of community-based organizations, accommodation of participants, the flexibility of research staff, collection of extensive contact information and frequent outreach to participants, adequate compensation, and promoting a positive view of the study.

In summary, health disparities research using CBPR approaches generally results in high recruitment and retention rates and positive intervention effects. The incorporation of investigator and research staff perspectives may further enhance the CBPR process and promote health equity.

Submitted: October 20, 2022 EDT, Accepted: May 03, 2023 EDT



This is an open-access article distributed under the terms of the Creative Commons Attribution 4.0 International License (CCBY-4.0). View this license's legal deed at <http://creativecommons.org/licenses/by/4.0> and legal code at <http://creativecommons.org/licenses/by/4.0/legalcode> for more information.

## References

- Arnold, R. D., & Wade, J. P. (2015). A Definition of Systems Thinking: A Systems Approach. *Procedia Computer Science*, 44, 669–678. <https://doi.org/10.1016/j.procs.2015.03.050>
- Berge, J. M., Mendenhall, T. J., & Doherty, W. J. (2009). Using Community-based Participatory Research (CBPR) To Target Health Disparities in Families. *Family Relations*, 58(4), 475–488. <https://doi.org/10.1111/j.1741-3729.2009.00567.x>
- Bonevski, B., Randell, M., Paul, C., Chapman, K., Twyman, L., Bryant, J., Brozek, I., & Hughes, C. (2014). Reaching the hard-to-reach: a systematic review of strategies for improving health and medical research with socially disadvantaged groups. *BMC Medical Research Methodology*, 14(1), 42. <https://doi.org/10.1186/1471-2288-14-42>
- Braveman, P., & Gottlieb, L. (2014). The social determinants of health: it's time to consider the causes of the causes. *Public Health Reports*, 129(Suppl 2), 19–31. <https://doi.org/10.1177/00333549141291s206>
- Caldwell, W. B., Reyes, A. G., Rowe, Z., Weinert, J., & Israel, B. A. (2015). Community Partner Perspectives on Benefits, Challenges, Facilitating Factors, and Lessons Learned from Community-Based Participatory Research Partnerships in Detroit. *Progress in Community Health Partnerships*, 9(2), 299–311. <https://doi.org/10.1353/cpr.2015.0031>
- De las Nueces, D., Hacker, K., DiGirolamo, A., & Hicks, L. S. (2012). A systematic review of community-based participatory research to enhance clinical trials in racial and ethnic minority groups. *Health Services Research*, 47(3 Pt 2), 1363–1386. <https://doi.org/10.1111/j.1475-6773.2012.01386.x>
- Domecq, J. P., Prutsky, G., Elraiyah, T., Wang, Z., Nabhan, M., Shippee, N., Brito, J. P., Boehmer, K., Hasan, R., Firwana, B., Erwin, P., Eton, D., Sloan, J., Montori, V., Asi, N., Dabrh, A. M. A., & Murad, M. H. (2014). Patient engagement in research: a systematic review. *BMC Health Services Research*, 14(1), 89. <https://doi.org/10.1186/1472-6963-14-89>
- Fortune, T., Wright, E., Juzang, I., & Bull, S. (2010). Recruitment, enrollment and retention of young black men for HIV prevention research: experiences from The 411 for Safe Text project. *Contemporary Clinical Trials*, 31(2), 151–156. <https://doi.org/10.1016/j.cct.2009.12.004>
- Goodman, M. S., & Sanders Thompson, V. L. (2017). The science of stakeholder engagement in research: classification, implementation, and evaluation. *Translational Behavioral Medicine*, 7(3), 486–491. <https://doi.org/10.1007/s13142-017-0495-z>
- Harvey, I., Schulz, A., Israel, B., Sand, S., Myrie, D., Lockett, M., Weir, S., & Hill, Y. (2009). The Healthy Connections project: a community-based participatory research project involving women at risk for diabetes and hypertension. *Progress in Community Health Partnerships*, 3(4), 287–300. <https://doi.org/10.1353/cpr.0.0088>
- Hinken, B. (n.d.). *Operationalizing Systems Thinking on One Page*. Systems Thinker. <https://thesystemsthinker.com/operationalizing-systems-thinking-on-one-page/>
- Holkup, P. A., Tripp-Reimer, T., Salois, E. M., & Weinert, C. (2004). Community-based participatory research: an approach to intervention research with a Native American community. *Advances in Nursing Science*, 27(3), 162–175. <https://doi.org/10.1097/00012272-200407000-00002>
- Horowitz, C. R., Robinson, M., & Seifer, S. (2009). Community-based participatory research from the margin to the mainstream: are researchers prepared? *Circulation*, 119(19), 2633–2642. <https://doi.org/10.1161/circulationaha.107.729863>
- Ibrahim, S., & Sidani, S. (2014). Strategies to recruit minority persons: a systematic review. *Journal of Immigrant and Minority Health*, 16(5), 882–888. <https://doi.org/10.1007/s10903-013-9783-y>



- Israel, B. A., Eng, E., Schulz, A. J., & Parker, E. A. (2005). *Methods in Community-Based Participatory Research for Health*. Jossey-Bass.
- Israel, B. A., Schulz, A. J., Parker, E. A., & Becker, A. B. (1998). Review of community-based research: assessing partnership approaches to improve public health. *Annual Review of Public Health*, 19(1), 173–202. <https://doi.org/10.1146/annurev.publhealth.19.1.173>
- Kamanda, A., Embleton, L., Ayuku, D., Atwoli, L., Gisore, P., Ayaya, S., Vreeman, R., & Braitstein, P. (2013). Harnessing the power of the grassroots to conduct public health research in sub-Saharan Africa: a case study from western Kenya in the adaptation of community-based participatory research (CBPR) approaches. *BMC Public Health*, 13(1), 91. <https://doi.org/10.1186/1471-2458-13-91>
- Nyden, P. (2003). Academic Incentives for Faculty Participation in Community-based Participatory Research. *Journal of General Internal Medicine*, 18(7), 576–585. <https://doi.org/10.1046/j.1525-1497.2003.20350.x>
- Pakhale, S., Kaur, T., Florence, K., Rose, T., Boyd, R., Haddad, J., Pettey, D., Muckle, W., & Tyndall, M. (2016). The Ottawa Citizen Engagement and Action Model (OCEAM): A Citizen engagement Strategy Operationalized Through The Participatory Research in Ottawa, Management and Point-of-care of Tobacco (PROMPT) Study: A Community Based Participatory Action Research Project in Inner City Ottawa. *Research Involvement and Engagement*, 2(1), 20. <https://doi.org/10.1186/s40900-016-0034-y>
- Redwood, D., Lanier, A., Kemberling, M., Klejka, J., Sylvester, I., & Lundgren, K. (2010). Community-based participatory research in a large cohort study of chronic diseases among Alaska native adults. *Progress in Community Health Partnerships*, 4(4), 325–330. <https://doi.org/10.1353/cpr.2010.0012>
- Rhodes, S. D., Alonzo, J., Mann-Jackson, L., Tanner, A. E., Vissman, A. T., Martinez, O., Rodriguez-Celedon, R., Garcia, J. M., Hall, J. E. A., Song, E. Y., Eng, E., & Reboussin, B. A. (2018). Selling the product: Strategies to increase recruitment and retention of Spanish-speaking Latinos in biomedical research. *Journal of Clinical and Translational Science*, 2(3), 147–155. <https://doi.org/10.1017/cts.2018.314>
- Salimi, Y., Shahandeh, K., Malekafzali, H., Loori, N., Kheiltash, A., Jamshidi, E., Frouzan, A. S., & Majdzadeh, R. (2012). Is Community-based Participatory Research (CBPR) Useful? A Systematic Review on Papers in a Decade. *International Journal of Preventive Medicine*, 3(6), 386–393.
- Savage, C. L., Xu, Y., Lee, R., Rose, B. L., Kappesser, M., & Anthony, J. S. (2006). A case study in the use of community-based participatory research in public health nursing. *Public Health Nursing*, 23(5), 472–478. <https://doi.org/10.1111/j.1525-1446.2006.00585.x>
- Sheikhattari, P., Apata, J., Kamangar, F., Schutzman, C., O'Keefe, A., Buccheri, J., & Wagner, F. A. (2016). Examining Smoking Cessation in a Community-Based Versus Clinic-Based Intervention Using Community-Based Participatory Research. *Journal of Community Health*, 41(6), 1146–1152. <https://doi.org/10.1007/s10900-016-0264-9>
- Tanjasiri, S. P., Weiss, J. W., Santos, L., Flores, P., Flores, P., Lacsamana, J. D., Paige, C., Mouttapa, M., Quitugua, L., Taito, P., May, V. T., Tupua, M., Vaikona, E., Vaivao, D., & Vunileva, I. (2015). CBPR-Informed Recruitment and Retention Adaptations in a Randomized Study of Pap Testing Among Pacific Islanders in Southern California. *Progress in Community Health Partnerships*, 9(3), 389–396. <https://doi.org/10.1353/cpr.2015.0067>
- Tanjasiri, S. P., Wiersma, L., Briand, G., Faletau, V., Lepule, J., Nacpil, L., & Eichenauer, J. (2011). Balancing community and university aims in community-based participatory research: a Pacific Islander youth study. *Progress in Community Health Partnerships*, 5(1), 19–25. <https://doi.org/10.1353/cpr.2011.0001>

- Tapp, H., White, L., Steuerwald, M., & Dulin, M. (2013). Use of community-based participatory research in primary care to improve healthcare outcomes and disparities in care. *Journal of Comparative Effectiveness Research*, 2(4), 405–419. <https://doi.org/10.2217/ceer.13.45>
- UyBico, S. J., Pavel, S., & Gross, C. P. (2007). Recruiting vulnerable populations into research: a systematic review of recruitment interventions. *Journal of General Internal Medicine*, 22(6), 852–863. <https://doi.org/10.1007/s11606-007-0126-3>
- Yancey, A. K., Ortega, A. N., & Kumanyika, S. K. (2006). Effective recruitment and retention of minority research participants. *Annual Review of Public Health*, 27(1), 1–28. <https://doi.org/10.1146/annurev.publhealth.27.021405.102113>