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Research paper

# Lessons learned for recruitment and retention of low-income African Americans

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ABSTRACT

Recruitment and retention of low-income African Americans in clinical trials is challenging. This paper reports recruitment and retention strategies that yielded high rates for both in a clinical trial pilot to improve hypertension self-management among low-income African Americans. The study successfully recruited 96.7% (59 of 61 participants) within a seven month period. Retention rates for the 1, 3, and 6-month post-baseline assessment visits were 91.5%, 88.1%, and 83.1%, respectively. Recruitment and retention strategies include two grounded in previous literature: a culturally sensitive and diverse research team and use of incentives. Four additional strategies were developed for this study to meet the needs of the study site and participants, which included: study site collaboration; ongoing communications; responding to the clinical environment; and addressing participants' health literacy levels. A discussion of key recruitment and retention strategies and suggestions for future studies focused on low-income African American participants ensues.

## 1. Introduction

Effective recruitment and retention strategies are essential to the overall success of clinical trials. Low recruitment and high attrition rates result in inequitable distribution of research risks and benefits and undermine the trial results [1]. Despite the well-established finding that health disparities in minority populations persist, minorities are underrepresented in health research. This creates barriers to meaningful research as it reduces analytic sample sizes, statistical power, generalizability, and consequently the validity of overall study outcomes. This negatively affects the validity of research and undermines the collection of evidence for eliminating health disparities [2–4].

Recruitment and retention of African American participants are major challenges in research. They are particularly daunting challenges for follow-up assessment monitoring behavior change [1,3,5]. Low levels of participation by minorities are often attributed to a lack of trust in researchers because of historical breeches of ethical research conduct [2,3].

Research exploring interventions designed to reduce the health disparities of hypertension and other chronic illnesses in low-income African Americans is needed [6]. Among all race/ethnicity subgroups in the US, African Americans have the highest hypertension prevalence (58.6% among men and 56.0% among women), which, when compared to the prevalence among whites (48.2% among men and 41.3% among women) [7], is a major disparity. There is a need to explore culturally appropriate strategies to improve recruitment and retention successes with African Americans. This would provide a stronger foundation for designing interventions that eradicate health disparities in hypertension for low-income African Americans [2,3,8].

Literature on promoting hypertension self-management in low-income African Americans is scarce and lacks critical information on recruitment and retention strategies. In a thorough review of papers examining this, we found only a few intervention studies with hypertensive low-income African-Americans adults and all indicated recruitment and retention challenges [9–12]. We found one study specifically on hypertensive low-income African-Americans adults [13]. Although the study reported a high retention rate (100%) over 8 weeks, the strategies used were not described. Other studies reported recruitment and retention strategies designed to enhance participation of African Americans of all incomes in clinical trials on chronic diseases other than hypertension [8,14–16]. Strategies included benefits to participation, convenience of participation, safety assurances, and trust. Finally, a few

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studies reported recruitment and retention strategies that were not specific to low-income African Americans or hypertension [17–19]. These included: community outreach, home visitation, staff support and stability, incentives, strong study staff rapport with participants, short interviews requiring little time commitment, and participants' perception of the study as informative.

The purposes of this paper are to describe recruitment and retention strategies utilized in a clinical trial pilot study that examined the effect of an Ecological Nurse Case Management (ENCM) Intervention for hypertension self-management in low-income African Americans [20] and to describe the recruitment and retention patterns that resulted from implementing the strategies.

## 2. Method

### 2.1. Design and sample

We conducted a randomized clinical trial to promote self-management in low-income African Americans with hypertension. The detailed aims and methods of the study are published elsewhere [20] and are briefly described here. The study was a two-group randomized clinical trial pilot study with three repeated measures over six months. The study examined the impact of Ecological Nurse Case Management (ENCM) on self-management behaviors of low-income African Americans under treatment for hypertension aged 30–65 years. Recruitment took place from March 2015 through September 2015 (a seven month time-period), and data collection continued through April 2016. The short window for recruitment was necessitated by the longitudinal design requiring a 6 month follow-up on all participants. The 59 participants were recruited from a free community clinic system with three sites that served low-income African Americans. The study was approved by the University of Wisconsin Milwaukee Institutional Review Board (IRB) and registered at clinicaltrials.gov (NCT02457871).

Clinic providers referred clients to the research assistant (RA) or Principal Investigator (PI) who conducted initial eligibility screenings. If the clients were eligible, the RA or PI informed them of their partnership with the clinic, the purpose of the research, and the study protocols and offered to enroll them in the study that day or made an appointment for a later enrollment time. At the time of enrollment, the PI or RA provided the clients with written materials about the study and consent forms tailored for low literacy. Participants could also choose to have materials read to them. Study measures, which included three relevant anthropomorphic measures (e.g. blood pressure) and three reliable and valid surveys, were collected by the PI or RA at the time of enrollment (baseline) and at 1, 3, and 6-month follow-ups [20].

### 2.2. Recruitment and retention challenges

The research team faced several challenges to ensure that the targeted recruitment goals were met. In the first month of recruiting at the study site, it was observed that many of the clinics' African American patients with hypertension were younger than initially defined in the inclusion criteria (ages 45–65 years). Some of the older patients had multiple comorbidities with end-stage organ involvement and were determined to be too ill to be included in this study by their provider. Clinic personnel also reported recent client population changes related to the federal 2010 Patient Protection and Affordable Care Act which allowed low-income clients to transfer to state Medicaid or Federal Health Exchanges for insurance coverage. Therefore, fewer African Americans were attending clinic sessions than anticipated. The original study design targeted in-person subject recruitment one day a week at the main site of the three total sites of the collaborating free community clinic system. Flyers were posted at the other sites so that clients could call the PI if they were interested in the study. Within one month of starting recruitment, difficulties were found in recruiting the required sample number, with all being recruited from the initial single clinic site.

As the study progressed, participant retention challenges emerged. These included: participants' work schedules, health conditions, transportation barriers, major life events, or interpersonal conflicts. Many participants had low paying jobs with long hours and some had multiple jobs; work schedules did not allow them enough time to participate. A few faced declining health during the study, rendering them unable to continue their participation. Some participants did not own or have access to automobiles or lived in locations that had limited access to public transportation. Finally, a small number of participants shared information about conflict with partners or other family members that limited their ability to make study appointments.

### 2.3. Recruitment and retention strategies

Six primary recruitment and retention strategies were employed during the study. Two strategies emphasized in the literature were included in the initial study design. These were development of a team strong in working with diverse populations and use of incentives. Four more strategies were added as the study continued to meet the clinic sites and participants at their level of need. These included: a) study site collaboration; b) ongoing communications; c) responding to the clinical environment; and d) addressing participants' health literacy levels. In the following sections, all six strategies are described.

**Team development approaches.** Four specific approaches were used for the development of a strong research team that were planned as recommended in the literature [3,4,21] to promote participant recruitment and retention of diverse populations. These included team members with: a) diverse backgrounds; b) experience working with the study population; c) study training and regular oversight; and d) commitment to serve throughout the study.

***Diverse backgrounds.*** First, a culturally sensitive and culturally diverse research team [3,4] was constructed by the PI. The team consisted of a European American PI, an Arabian research assistant (RA) and an African American nurse interventionist.

***Experience working with the study population.*** Next, all had experience working with the study population. The PI had more than 28 years of population health clinical experience working in collaborative practice partnerships with urban community-based organizations serving low-income African Americans. The RA and nurse interventionist demonstrated cultural sensitivity and competencies early in the hiring process. The RA had been involved in several research studies aimed at improving health outcomes in minorities including African American and Hispanic populations. The nurse interventionist had practiced for over 14 years in a nurse-managed health center developing and providing the ENCM intervention for an urban, low-income African American population.

***Study training and regular oversight***. The third approach of regular training and team oversight was planned by the PI to occur throughout the study. Weekly research team meetings were held for intervention fidelity testing and study coordination. All training and oversight sessions highlighted cultural sensitivity and flexibility in meeting participants' needs. The research team's initial protocol training and then weekly meetings emphasized the importance of respecting the participants' culture and discussion of cultural specifics for this population. The study PI encouraged team members to be sensitive and responsive to participants' unique needs and flexible during all study interactions. For example, offering participants help with paperwork and questionnaires for those with impaired vision or limited literacy competency.

***Commitment to serve throughout the study.*** Finally, the PI also looked for team members who could commit to serving on the study for its two-year duration. The team remained intact for the entire study, which allowed trusted relationships to develop with the participants. This in turn enhanced participant retention in the study since both participants and clinic staff were less likely to encounter unfamiliar research team members and received consistent study information.

**Use of incentives.** As shown effective in past studies [17,22],

monetary compensation was offered for participation in the study for both control and intervention group members. A $20 gift card to a popular nearby discount store was given to each participant upon the completion of their baseline assessment visit and another $20 gift card at each follow-up assessment visit. The discount store was chosen by the PI for participants' convenience of access. The assessment visits usually took 20–30 min once the participant arrived. This totaled a possible $80 incentive for participation during the 6-month study period. The intervention group received no additional incentives for their visit time with the nurse interventionist. The time with a health professional was conceptualized to be an add-on to the participants' usual free clinic care and seen as providing value and intrinsic reward in and of itself. Nor were any additional incentives offered such as compensation for transportation. The next sections will describe the four recruitment and retention strategies developed over the course of the study to meet the clinic sites and participants' needs.

**Study site collaboration.** A partnership was established with the free community clinic system with three sites that served only the uninsured with a predominantly African American population. This collaboration strengthened the study team's abilities to recruit and retain participants. The PI had served the same community for over 20 years and was well-known to the clinic director and lead staff. The partnership with this local, longstanding, well-known and trusted primary care clinic increased the study's credibility among potential participants. The study team members were welcomed as collaborative partners, with the study seen as an expansion of the clinic's existing services.

Prior to the beginning of client enrollment, the team was invited to attend staff and provider meetings to explain the study, answer questions, and address concerns. As the study started and progressed over 18 months, brief activity coordination huddles between clinic staff and research team members occurred at the beginning and end of each on-site study session and as needed during the sessions. Extra time was taken by the PI or RA during each session to connect with available clinic staff about the progress of the study and how it was fitting with their clinic flow and services. Their concerns and any challenges for their clients were shared. They were encouraged to call the researchers at any time if concerns surfaced. This partnership was evidenced when late in the first year of the study the Medical Director invited the study PI into a meeting with an outside researcher about hosting another study at the site. The clinic director was concerned that another study may interfere with the current study recruitment efforts and wanted this PI's input on the suitability of the proposed study for the site and potential subject recruitment challenges.

The close study site collaboration that developed became important when changes were needed in the study protocol. The research team found that recruitment was difficult in the initial one-day per week in-person on-site scheduled. More staff effort than anticipated was required to address the recruitment and retention challenges. To ensure that the PI and RA could be available in-person, they increased their scheduled in-person recruitment hours to include Monday through Friday and one Saturday a month between the three clinic sites. On those days, the clinic providers told the potential participants when the study team was on site and that they could easily sign up to participate that day and have their first assessments taken. Providers also gave patients study flyers with a brief explanation of the study and the study's phone numbers to call if they were interested in the study and did not want to see the study team that day. This allowed the interested clients to call one of the research team members at the number on the flyer when it was more convenient for them and to schedule an in-person appointment about the study at the clinic on a different day. Participants could also schedule special meeting times or locations, if needed, to learn more about the study. The nurse interventionist was present at the scheduled recruitment sessions as her schedule allowed and offered a same day nurse interventionist visit to those participants assigned to the intervention group for their convenience. If the participants did not have time to meet with the nurse interventionist that day, they were introduced to her and a future appointment was made for a convenient date and location.

**Ongoing communications.** As just described, the study PI conducted trainings with the research team and the free clinic staff. After being trained, the RA also became responsible for reviewing the study protocol with clinic staff. The research team maintained regular communications: a) within their team, b) with the free clinic system, and c) with participants throughout the study. Many efforts in these three types of communication were focused on the research team's recruitment of participants and afterwards for their retention. Each type of communication strategy is further explained below.

***Communication among members of the research team.*** After the initial study protocol trainings, the PI conducted weekly research team meetings to assure intervention fidelity and allow research team members to share their experiences and problem solve together. During the weekly meetings, the research team also worked on creating solutions to recruitment and retention challenges and coordinating follow-up efforts. Several research team communication tactics emerged that were key to participant retention. The PI coordinated follow-up participant contact efforts with the RA and the nurse interventionist for participants who had not shown up for assessment appointments or nurse visits. The nurse interventionist documented her efforts in the study participant's electronic health record. A protocol for maintaining contact with participants was developed and a spreadsheet for tracking assessment appointments was maintained throughout the study. Notes were recorded on the spreadsheet regarding contacts with participants for confirmation of assessment appointments and follow-up on missed assessment appointments. The tracking spreadsheet was easy to access online by the research team across sites from a secure, encrypted, shared drive to keep an up-to-date record of contact attempts and outcomes. The tracking protocol included the PI and RA recording all participant contacts on the spreadsheet. They entered the dates of and responses to contacts attempted with appointment cards, phone calls, letters, cards, texts, and emails between assessment sessions. In addition, any returned mailings were tracked on the spreadsheet. The tracking spreadsheet served as an online communication device between research team members as the study progressed.

***Communication between members of the research team and participants.*** During the initial recruitment sessions, the PI and RA called the free clinic site coordinators to have them remind their clients of weekly study recruitment schedules during their clinic appointments. Close relationships between the research team and clinic staff were important as the staff were often more available to communicate with participants and able to coordinate contacts with difficult-to-reach participants. Once enrolled, reminder contacts were made to participants one week prior to their nurse interventionist visits or their assessment appointments (Table 1). These contacts were attempted by phone, texts, or emails three times and, if unsuccessful, then a letter was sent. Thank-you cards were mailed by the PI to participants following each successfully attended follow-up assessment appointment and later, holiday greeting card mailings to participants were added. The participants voiced appreciation for the ongoing contact between study appointments.

Other communications specific to client recruitment were supported by the PI. During the recruitment phase of the study, client enrollment was promoted by communicating the value of their contribution to the research. An overview of the federal research funding process and the science of clinical trials was provided. The study was briefly reviewed, along with the research team members' backgrounds and motivations for conducting the research. Once enrolled in the study, participants were kept appraised of the progress of the study protocol. The PI also shared plans for returning the study results back to the clinic through meetings with the clinic leadership and staff. When available, copies of any publications from the study would be forwarded to each clinic site for easy access by the participants.

**Table 1**
Research team communications with participants.

| Participant Follow-up Contact Type | Research Team Member(s) | Mode of Contact | | | | | Documentation Location |
|---|---|---|---|---|---|---|---|
| | | Phone | Text | Appointment Cards | Email | Letter/Card | |
| Visit Reminders Before Visit | PI; RA; or NI | X | X | X | X | After 3 other contacts attempted | Tracking Spreadsheet & Client Records |
| Missed Visit Inquiry | PI; RA; or NI | X | X | | | After 3 other contacts attempted | Tracking Spreadsheet & Client Records |
| Clinic Site Coordinator Contacts | PI or RA | X | | | | | Tracking Spreadsheet |
| Thank-you Cards | PI | | | | | X | Tracking Spreadsheet |
| Greeting Cards | PI | | | | | X | Tracking Spreadsheet |

Note: PI = Principal Investigator; RA = Research Assistant; NI = Nurse Interventionist.

The intervention group participants were offered options for convenient meeting times and places with the nurse interventionist, including a telephonic option. These options were part of an essential component of the ENCM intervention [20]. Communications took place to assess these needs. If the participants missed their scheduled assessment or intervention appointment, follow-up communication by phone call, text, email, or letter were made to participants to reschedule a phone interview or to meet at a place convenient for assessments or a nurse interventionist visit. A close, collaborative, engaged relationship with the participants at each site was developed and maintained throughout the six-months of the study. The research team was welcomed and visible at the clinic sites. The team became familiar to the participants as trusted colleagues of the clinic. The research team's willingness to be flexible and meet participants' needs greatly increased retention for both follow-up data collection and nurse interventionist visits.

***Communication between members of the research team and clinic staff.*** After agreements had been made to conduct the study at the main clinic of the free community clinic system and the university IRB approval was completed, key clinic personnel were identified to help with recruitment and scheduling of eligible patients for the study. The PI held an initial training session with the clinic staff about the study, subject recruitment, and inclusion and exclusion criteria using a handout with the referral protocol. The clinic staff then referred patients meeting the inclusion criteria to the study. Initial training sessions were held with other clinic site staff when the other two clinic sites were added to the study. Later, ongoing orientation and training of clinic staff was found to be needed throughout the study. Clinic staff were primarily volunteers and students who rotated frequently, with two consistent lead nurses who became key contacts for the study. Brief staff orientations by the PI or RA using the referral protocol handout were completed each time the team was on site and new staff was present. The study team treated the clinic staff as research partners and regularly communicated that the clinic staff members were valued as key to the research process. This enhanced the clinic staff engagement with the research process and, in turn, promoted their support of the recruitment and retention efforts. For example, the clinic nurse took time to contact the PI or RA for coordinating medical and research appointments for patients' convenience. When participant recruitment ended, research staff kept connected to the site throughout the six months of the study for assessment appointments and participant follow-up coordination efforts. The nurse interventionist also scheduled visits at the clinic site when it was more convenient for the clients. Clinic site staff made accommodations for clinic space to conduct the study recruitment, assessment visits, and intervention visits with participants after and outside of their clinic visits.

**Responding to the clinical environment.** Once the research team was on-site at the free clinic, more was learned about the clinical environment and changes that occurred since the study proposal was submitted. Two trends adversely affected recruitment. First, the study team and the partner site clinicians observed many younger African American patients attending the free clinic for hypertension treatment during the early in-person participant recruitment sessions. These clinical observations were consistent with recently reported trends of younger ages reported for hypertension diagnoses in the African American community in the literature [23,24]. An amendment was submitted to the IRB to modify the sample minimum inclusion age from 45 to 30 years old to include younger clients being seen in the three clinics. This expanded the potential pool from which to recruit and aligned with the research intent to improve hypertension self-management in individuals when it might have more impact in their outcomes long-term. The recruitment fliers were updated to reflect the changed inclusion criteria. Modifications and clarifications were made to the provider recruitment protocol to increase the number of referrals and to educate clinic staff about these changes.

A second trend affected the recruitment efforts. The original study design targeted in-person subject recruitment at only one of the three sites of the collaborating free community clinic system with recruitment flyers posted at the other sites. The Medical Director shared that their client numbers and demographics had changed with clients' improved access to health insurance through the federal 2010 Patient Protection and Affordable Care Act. Fewer African Americans were being served. The study team found that only their in-person recruitment efforts yielded enrollment of study participants. The free clinic patients did not respond to either the study outreach flyers or free clinic provider referrals to the study. Expanding in-person recruitment to all three free clinic sites was determined collaboratively as a strategy to improve the study recruitment rates. To recruit from the other two sites, their clinic staff were informed about the study by the clinic's Medical Director and study protocol training was conducted by the PI.

**Addressing participants' health literacy levels.** As experts in culturally relevant health care and health literacy, the PI and nurse interventionist incorporated culturally and linguistically appropriate materials [25] for outreach communications, consent forms, and other written materials. One strategy employed to make the study materials understandable to participants who may be low literacy readers, was to develop them as low literacy materials. This entailed keeping the materials' style simple and conversational, employing illustrative graphics when appropriate, and writing at a sixth grade or lower reading level [26]. All written study materials for clinic clients and participants were assessed for readability levels by Microsoft® Office Word Spell Check readability function using the Flesch–Kincaid Grade Level test to assure a sixth-grade or lower reading level. The study outreach flyers scored at a 4.8-grade reading level, while the client letters were each rated between a third to fourth grade level.

Of concern was the study consent. The IRB consent template showed an eight to ninth grade reading level using the Microsoft® Office Word readability function. The PI revised the consent to a fourth-grade reading level. The IRB was responsive and approved the revised consent form. The revised consent form was well-received by clients. An oral review of the consent content was provided for each client, and their questions were answered. In addition, the PI and RA offered to read

the consent out loud to assure if clients wished.

Finally, the nurse interventionist developed low-level health literacy health teaching flip charts on hypertension, stress, and nutrition for education of the intervention group participants. Each flip chart used primarily visual graphics that communicated the health messages. Other health promotion materials were also assessed for cultural and health literacy appropriateness or revised before sharing them with study participants.

### 2.4. Recruitment and retention rates

The study had a recruitment rate of 96.7% with 59 of the targeted sample of 61 participants [20] within the seven-month time frame allowed for participant recruitment in the two-year longitudinal study design. Among all eligible participants (N = 59), 91.5% completed one or more visits, while 83.1% completed all 3 post-baseline visits. Completion rates for the 1, 3, and 6-month post-baseline visits were 91.5%, 88.1%, and 83.1%, respectively. At the end of the 6-month study, the attrition rates were 24.1% and 10% among the intervention and control groups, respectively. At the 6-month visits (last visit), the overall study had a retention rate of 83.1% (Table 2).

## 3. Discussion

This paper reported on six recruitment and retention strategies utilized in a clinical trial on promoting hypertension self-management behaviors in difficult-to-reach low-income African Americans. This study recruited 59 out of its target of 61 participants within the initial seven month period of the two-year funded study, allowing sufficient time for the planned longitudinal follow up. The study achieved a retention rate of 83.1% completing all study assessment and follow up visits (6 months). This compares favorably to retention rates that ranged from 60% to 74% in several studies targeting African Americans [21,27–31].

Although clinical trials among low-income African Americans are critical to address heath disparities in this population, recruitment and retention of participants in clinical trials continues to be an enormous challenge for the successful completion of studies. Failure to meet studies' recruitment and retention goals is common, and research on many health disparities is lacking for this population [18,32]. Such recruitment and retention failures negatively impact the overall quality of a study; it may lead to uncertainty in treatment effectiveness, introduce bias, and decrease generalizability.

During the study, valuable lessons were learned regarding recruitment and retention. The study design planned for successful recruitment and retention with strategies that were validated in previous studies [22,33,34], including development of a team skilled in working with diverse populations, use of incentives, study site collaboration, and ongoing communications, taking into consideration the specific setting and population characteristics. Establishing and sustaining respectful collaborative relationships with trusted stakeholders and community members and having constant communication with them were also seen as keys to good recruitment and retention rates [14,21]. These strategies were essential in building trust between research staff and the free clinic staff and study participants, which facilitated successful completion of the study. Through consistent presence of the study team in the free community clinic system, relationships were built with participants and clinic sites' staff, which were helpful in retaining participants for follow-up visits.

A successful retention strategy was the use of incentives. The proposed study budget included monies for staffing needs and incentives. Recruitment and retention of participants for multiple assessment visits required significant staff time and incentives, which were costly. Incentive amounts of $20 gift cards were deemed to be respectful of the participants' time and acknowledge their contributions, and not too large to be considered coercive [34]. The gift card compensation during the assessment visits aimed at minimizing the participants' inability to foresee immediate benefit for the time commitment that was required for the assessment visits, which might have discouraged participation in the study [34]. Poorer retention occurred in the intervention than control group and might be related to the intervention group receiving no gift cards after their intervention sessions. Participants may not have seen the nurse interventionist visits as an intrinsic reward of time with a health professional as the PI had anticipated. Incentivizing nurse interventionist visits may have improved retention among the intervention group; however, this would have considerable impact on study costs. With this six-month study, a minimum of a monthly nurse interventionist visit was requested for the minimum intervention dose. More visits were made by the nurse interventionist if requested by the participant, with one participant receiving 23 visits and the mean for all visits being 12 visits. With 29 participants in the intervention group [20] offering $20 gift cards for each nurse interventionist visit would have added an estimated $6960 to this pilot study budget for 12 visits with each participant.

A few recruitment challenges were faced in the beginning of the study which required modifications and additions to study plans. Although not discussed previously in the literature as a recruitment or retention strategy, responding to the clinical environments at all three clinics proved to be successful strategy to achieve the recruitment goals. The research team had to respond to the clinical environment due to changes in the clinic patient demographics since the study proposal had been written. The study team need flexibility to address these changes in a timely manner without compromising the integrity of the study. A combination of strategies, some of which needed to be developed as the project team gained greater understanding of the needs of the participants and the sites, helped improve recruitment rates. The close site collaboration and communications facilitated understanding of the younger ages of the hypertension patients seen by clinicians leading to an IRB inclusion criteria amendment and the rapid expansion of in-person recruitment to two more clinics. Maximal flexibility in scheduling study activities with participants was critical for recruitment and retention. Many participants had family responsibilities, work, and social commitments. Scheduling at the workplace or church at times chosen by participants, including evenings or weekends, was convenient to participants, even if it is not convenient to the research team. This scheduling flexibility made it easier for participants to attend sessions.

Despite the additional research team efforts, the investment of resources is essential for research projects attempting to address health issues in similar populations. Utilizing flexible recruitment strategies may affect the study's internal validity. However, these strategies, by maximizing the retention of community participants in community settings, may enhance the external validity of the design. Often an internal and external validity trade-off has to occur with this type of research focus or vulnerable populations.

Historically, studies on self-management of chronic diseases do not report their recruitment and retention rates or strategies [8,13–16]. Future researchers need to provide descriptions of their successful and unsuccessful recruitment and retention strategies to inform future research efforts. This would also help researchers plan for retention

**Table 2**
Recruitment and retention rates (goal: 61 participants).

| | Total Participants (%) | Control Group Participants (%) | Intervention Group Participants (%) |
|---|---|---|---|
| Recruitment Rate | 559 (96.7%) | 330 (96.8%) | 229 (97.7%) |
| Retention Rate (N = 59) | | | |
| 0–1 month | 554 (91.5%) | 229 (96.7%) | 225 (86.3%) |
| 0–3 months | 552 (88.1%) | 229 (96.7%) | 223 (79.3%) |
| 0–6 months | 449 (83.1%) | 227 (90.0%) | 222 (75.9%) |

prior to recruitment to improve the external validity of research findings. The limitation of this study is that the strategies reported in this paper are lessons learned and are not tested through an experimental study to determine the impact of these strategies.

## 4. Conclusion

We found that successful recruitment and retention requires experience, appropriate allocation of resources, good partnerships, ongoing communication, and training and flexibility. High recruitment and retention rates contribute to successful research allowing investigators to make strong statements about their results and maximize use of valuable resources. Future researchers are encouraged to implement and evaluate these strategies to provide further support of their efficacy. An evidence-based approach that improves recruitment and retention among minorities, particularly low-income African Americans who are at risk for health disparities is needed.

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## Declaration of competing interest

The authors declare that there is no conflict of interest.

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