Published in final edited form as:

J Appl Gerontol. 2020 June ; 39(6): 644–650. doi:10.1177/0733464818786612.

Recruiting Older Adults With Functional Difficulties Into a Community-Based Research Study: Approaches and Costs

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Abstract

The CAPABLE (Community Aging in Place, Advancing Better Living for Elders) trial in Baltimore City tested whether an interdisciplinary team of occupational therapists, nurses, and handymen reduces disability and health expenditures in community-dwelling older adults with functional difficulties. This study describes methods and associated costs of recruiting 300 low-income, cognitively intact, older adults with functional difficulties into this study. Sources of participant enrollment included direct mailings (35%), government program referrals (19%), community-based organizations (16%), ambassador referrals (15%), and media (4%). Fifty six (30%) of 187 older adults referred through government organizations were enrolled, while 49 (7.6%) of 648 referred from community-based organizations were enrolled. Total recruitment costs were US\$81,453.12. Costs per participant for mailings, media, ambassadors, and community-based organizations were respectively US\$745.10, US\$256.82, US\$22.28, and US\$1.00. Direct mailings yielded the most participants but was the most costly method per participant. Ambassadors were least expensive and may offer a low-cost addition to community outreach for recruitment of older adults into research.

Keywords

recruitment of older adults; functional limitations; recruitment costs

Introduction

The U.S. older adult population is expected to rise from 43.1 million to 83.7 million by 2050 (Ortman, Velkoff, & Hogan, 2014). Older age is associated with comorbidities and functional difficulties (World Health Organization [WHO] & U.S. National Institute of

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Authors' Note

This article was presented at the 10th Annual Research on Aging Showcase on, Friday, March 31, 2017 at the Johns Hopkins Bloomberg School of Public Health.

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Declaration of Conflicting Interests

The author(s) declared no potential conflicts of interest with respect to the research, authorship, and/or publication of this article.

Aging, 2011). Up to 61% of community-dwelling older adults have at least one functional difficulty (Centers for Disease Control and Prevention, National Center for Health Statistics, 2016). Functional difficulties are impairments and activity limitations (WHO, 2016), such as difficulty cooking, managing medications, and caring for the home. They affect quality of life, are risk factors for other negative health outcomes, and are costly (Alexih, Shen, Chan, Taylor, & Drabek, 2010; Bentley et al., 2013; Dai, Roberto, Tom, Gentry, & Stuart, 2016; Koroukian et al., 2016). Health expenditures for older adults with functional difficulties are higher compared with those with chronic conditions alone (Dai et al., 2016). Research in this population is critical to identify the most effective health interventions, but researchers face many challenges in recruiting older adults for studies.

To meet the diverse and growing health care needs of this population, recruitment, enrollment, and participation of older adults in research are crucial. The National Institute on Aging (NIA) reports that the participation of older adults in research is necessary to understand the unique challenges and therapies that can improve the health of older adults (NIA, 2017). Although traditionally excluded from research, many older adults want to participate in research. Alsaed and colleagues (2016) reported that older adults recommend that their peers become actively engaged in all stages of research. Many older adults need to and want to participate in research, but recruitment challenges abound.

Research on recruitment and its associated costs for community-dwelling older adults with functional difficulties into home-based intervention trials is limited. The Lifestyle Interventions and Independence for Elders (LIFE) studies reported success with recruiting older adults who were sedentary and had high risk of mobility disability into an intervention trial using brochures/letters, community outreach, media, and referrals (Katula et al., 2007; Marsh et al., 2013). However, older adults in the LIFE studies were able to walk 400 m and had better functional abilities compared with the CAPABLE (Community Aging in Place, Advancing Better Living for Elders) participants. Yet even fewer studies examine cost. In the LIFE studies, the researchers spent US\$186,309 and US\$1,374,214 to recruit 439 and 1,635 participants into their pilot and intervention trials (Katula et al., 2007; Marsh et al., 2013). Mailings were the most expensive approach in these studies (Katula et al., 2007; Marsh et al., 2013). Also, Project ABLE (Gitlin et al., 2006) successfully recruited community-dwelling older adults with functional difficulties into a home-based multidisciplinary intervention trial; however, recruitment methods for this study were not published.

Research recruitment of older adults who have functional difficulties and are low income can be challenging because they are more likely to have multiple chronic conditions, report poorer health, are frequently hospitalized and require assistance with personal care (Musich, Wang, Hawkins, & Yeh, 2015; Ornstein et al., 2015). These comorbidities and fatigue can make study participation difficult for several reasons. First, it may make it difficult to fully engage in research-related activities. Second, these comorbidities may disqualify them from enrollment (Carroll & Zajicek, 2011; Provencher, Mortenson, Tanguay-Garneau, Belanger, & Dagenais, 2014; Ridda, MacIntyre, Lindley, & Tan, 2010; Wilding et al., 2013). Third, comorbidities such as cognitive, vision, and hearing impairment can limit ability to consent (Lona, 2008; Ridda et al., 2010). Some older adults may prefer the recommendation of gatekeepers, such as trusted family members, friends, and clinicians prior to consenting and

enrolling into research studies (Carroll & Zajicek, 2011; Ford et al., 2013). Finally, because of historical incidences of research misconduct, some older adults especially racial/ethnic minorities have negative attitudes and distrust of the medical and research community (Carroll & Zajicek, 2011; Luebbert & Perez, 2016). Creative approaches are needed to recruit and enroll older adults into research studies, particularly the 60.5% (Centers for Disease Control and Prevention, National Center for Health Statistics, 2016) who have functional difficulties and are low income.

The purpose of this study is to describe recruitment methods and associated costs for recruiting older adults with functional difficulties and low income into a home-based randomized control intervention trial. This article adds to literature by describing specific strategies utilized to recruit older adults into a trial that was testing the effectiveness of a multidisciplinary approach to decrease functional difficulties and improve ability to aging-in-place.

CAPABLE Study Design

The CAPABLE study was a randomized control trial in Baltimore City testing whether an interdisciplinary team of occupational therapists, nurses, and handymen improved quality of life and reduced disability and health care expenditures in community-dwelling older adults with functional difficulties. The study was funded through the National Institutes of Health (#R01-AG040100) and received ethical approval from the Johns Hopkins University Medical Institutions Institutional Review Board. Participants were eligible for recruitment if they (a) were 65 years old, (b) were cognitively intact based on Mini-Mental State Examination, (c) had difficulty with 1 activities of daily living (ADL) or 2 instrumental activities of daily living (IADLs), (d) had income 199% of federal poverty level, (e) were able to stand with or without assistance, and (f) agreed to study participation and randomization. Participants in the attention control group received the same number of home visits over the same time frame from a study team member who engaged them in sedentary, cognitively stimulating activities of choice. Both groups received up to 10 home visits over the course of 5 months.

Method

Recruitment Sources

Participants in the CAPABLE study were recruited from six primary sources (see Table 1). Study participants were recruited from government programs and other community-based organizations, mailings, media, CAPABLE ambassadors, and from the principal investigator's (PI) past studies. CAPABLE participants from government programs were recruited through the Baltimore City Health Department and Baltimore City Housing Leading Innovation for a Green and Healthy Tomorrow (LIGHT) program. LIGHT is a collaborative multi-organization program that coordinates the screening and provision of no- and low-cost services (such as energy efficiency, home rehabilitation, lead hazard reduction, fall/injury prevention, asthma reduction, and other home improvements) to low-income Baltimore city residents (Baltimore Housing, 2015). Community organizations that provided sources for recruitment for CAPABLE included neighborhood associations, nonprofit

organizations, churches, libraries, and senior centers (many of the Baltimore city senior centers are government funded).

These government programs and community-based organizations were engaged in ways that did not interrupt routine operations. For example, the Baltimore City Health Department provided a list of older adults to the CAPABLE study and team members contacted them to screen for eligibility. Meals on Wheels (MOW), a community-based organization, gave the study team a list of clients who were sent letters about the study. These letters asked individuals who were not interested to notify the study team. Team members then followed up with phone calls to the individuals with reported interest to screen for eligibility. Finally, study team members gave presentations to older adults at local senior centers, libraries, and churches where they handed out brochures, posted flyers, and encouraged interested individuals to contact the study team for screening.

Mailings and past research participants were also utilized. A direct marketing (direct mail) company was used to generate a list of older adults that met the income eligibility criteria by city zip code. Zip codes with high density of older adults were primary recruitment targets. This company mailed brochures with a detachable prepaid postage card that potential participants could fill and send back to the study team. Some mailings were letters sent through the Department of Health and Mental Hygiene (DHMH, a primary recruitment source for the other CAPABLE study that was taking place concurrently).

Some media advertisements were purchased, and past study participants were a free recruitment source. The study team placed one radio ad that was aired 300 times and one magazine advertisement of the study flyer in an aging resource guide for local older adults that printed 75,000 copies. In addition, the study was featured on local radio, television, and print news programs (no charge), which yielded some study participants. A handful of participants from the PI's previous studies were contacted, screened, and consented.

The only novel method the study team used was the "Ambassador program." This approach was used successfully in the Baltimore Experience Corps® pilot study and formalized and named the Ambassador Recruitment Program in the Baltimore Experience Corps® Trial (E. Tanner, personal communication, October 16, 2014). The name "Ambassador Program" was further refined for use in the CAPABLE study. After completing the intervention, past participants were invited to serve as ambassadors to help with recruitment by telling others about the study. CAPABLE past participants who enrolled in the "Ambassador program" were given study brochures to distribute to friends and family members who might be interested in joining the study. Potential participants then contacted the study to be screened and informed the study team of the name of the past participant who referred them. Ambassadors were reimbursed US\$20 for each participant successfully enrolled into the study.

Data Collection Methods

Research assistants screened all potential participants by phone or at home during the baseline screening and intake. Screening information, including how potential participants heard of the CAPABLE study (sources of recruitment), was documented by the research

assistants in a database. Receipts from recruitment-related expenses were also documented in the study expense database.

Calculating Recruitment Costs

Costs included in this analysis were those incurred from recruitment-related activities only, including study materials and advertisement. These costs do not include personnel/labor such as research assistants and interventionists salary/time. The total costs calculated included the following: mailing study materials, radio and magazine advertisements, printed study flyers/brochures, mailing letters to MOW clients, and ambassador reimbursements. To calculate overall cost for recruitment per participant, we divided the total cost by the total number of enrolled participants. To calculate the cost for each method, we divided its total cost by the number of participants enrolled from that source.

Results

The study team assessed 1,713 individuals for trial eligibility from that 420 (25%) were further screened. The majority of the potential participants 893 (52%) did not meet inclusion criteria. Individuals who were eligible to participate but who did not enroll were significantly older. Mean age of enrolled participants was 75.7 compared with 79.3 for participants who were screened but did not enroll ($p = .0002$). There was no difference in gender between participants who enrolled in CAPABLE compared with those who did not enroll (87.3% vs. 85.3% for females, $p = .681$). Demographic characteristics of the study participants have been reported elsewhere (Szanton, Leff, Wolff, Roberts, & Gitlin, 2016).

Of the 420 who underwent secondary screening, 300 or 71% were willing and eligible to participate and were enrolled in CAPABLE between 2012 and 2016. Thirty percent of those referred through government programs were enrolled into the study, whereas only 7.6% of those from community-based organizations were enrolled in CAPABLE (see Table 1). Government programs through the Baltimore City Health Department and Baltimore City Housing (LIGHT) program yielded 18.7% of the sample (see Table 1). Community-based organizations brought in 16.3% of the study sample. Mailings brought in the greatest number of participants, 34.7%, while the ambassadors brought in 15.3% of the sample.

Recruitment Costs

The total cost of materials and supplies for recruitment in the CAPABLE trial was US \$81,453.12; the resulting cost per enrolled participant was US\$271.51. The average cost per enrolled participant from sources with direct costs was US\$387.87 (i.e., sources with direct cost are those whose cost are calculated for this analysis). A detailed breakdown of costs by method is presented in Table 2. Mailings were the most expensive recruitment method at US \$745.71 per enrolled participant and direct mail at US\$848.36 per participant. The study team had total control over how many direct mailing brochures were mailed to each potential participant, thus this method was the most reliable for recruitment and evaluation purposes. While the “Ambassador Program” and community outreach (government programs and community-based organizations) were inexpensive costing US\$22.28 and US \$1.00 per enrolled participant respectively, we were unable to predict how many participants

we would yield from these sources. Brochures were a moderately expensive method of recruitment and cost US\$331.43 per enrolled participant.

Discussion

Recruitment through community outreach yields success but presents challenges. Community outreach through Baltimore city government programs along with community-based organizations were the most productive approach to recruitment. This approach yielded 49.7% ($n = 149$) of study participants (Table 1). Recruitment through trusted community organizations and community outreach is a recommended strategy to successfully enroll older adults into research (Ejiogu et al., 2011; Hughes, Varma, Pettigrew, & Albert, 2017; Nicholson, Miller, Schwartz, & Sorokin, 2013; Shearer, Fleury, & Belyea, 2010; Wilding et al., 2013). Recruitment through community outreach requires staff time to coordinate and implement, which might be challenging to budget prior to research implementation, and track during the project especially if study staff are performing multiple roles. Other resources such as brochures and flyers are utilized with community outreach as they are given out at events or left with organizations to distribute to their clients.

In addition, successful recruitment of older adults through community outreach is context specific and requires flexibility. Choice of community organizations to partner with depends on several factors. First, the local availability of community organizations; second, the nature of the researcher-community partnership that requires time to create and nurture; and third, in our experience, successful community outreach partnerships were also dependent on the community organizations' leaders' willingness and openness to research and innovative approaches for care of older adults.

Recruitment costs in CAPABLE were comparable with similar studies. The most expensive method of recruitment was the direct mailings followed by media and brochures. Direct mailing and letters are a frequently used and recommended recruitment strategy in studies with older adults (Marsh et al., 2013; Morrison, Winter, & Gitlin, 2016). The US\$848 cost per participant is slightly higher than US\$695 it cost to recruit older adults who were sedentary and with high risk of mobility disability into the LIFE study (Marsh et al., 2013). CAPABLE brochure/flyers costs of US\$331 per enrolled participant were approximately at the midpoint when comparing costs of other similar studies (US\$151 and US\$453; Katula et al., 2007; Marsh et al., 2013). Brochures are common and also often utilized for recruitment of older adults into research (Hughes et al., 2017; Marsh et al., 2013; Morrison et al., 2016).

Recruitment plans for research with older adults should be evaluated and improved continuously during the research process (Bonk, 2010). The initial plan for this study was to recruit participants through Baltimore City Housing (LIGHT) program, which is a program that provides energy efficiency monitoring and devices for low-income residents. This source had the potential to yield the required sample size and was used successfully during the pilot (Szanton et al., 2011). Yet, when this method alone did not yield an adequate number of participants, new recruitment strategies including the "Ambassador program" and revision of the study brochure were implemented. During the study, we increased male enrollment by 50% with a simple change to the recruitment brochure. To do this, our study

team collaborated with our marketing department to choose a welcoming picture of an older adult man by himself.

The “Ambassador program” aligns with current literature suggesting attention to family and social context to enhance trust and engagement during research recruitment (Ford et al., 2013; Ridda et al., 2010). Strategies suggested in these circumstances include engaging with community organizations and family members that older adults know and trust (Ford et al., 2013; Ridda et al., 2010). The ambassadors can represent a trusted family or community member who “tells their story about his or her experiences with research” (Hughes et al., 2017) to a potential participant. A similar approach called “name a friend” has been used to recruit older adults into a body composition study (Bonk, 2010), and another “refer a friend” is currently being used in a clinical trial consortium to recruit participants into pharmaceutical trials (Clinical Research Consortium, 2016).

Finally, while we utilized the traditional mailings, flyers, and less traditional ambassadors, the ubiquity of technology and social networks may make recruitment of older adults different in the near future. Seventy percent of older adults have cellular phones, 60% of them go online and about 25% access social network sites (Smith, 2014). As the current cohort of younger older adults ages, innovative approaches involving technology will likely be used for research recruitment of older adults. Also, with the creation of the NIA Recruiting Older Adults into Research (ROAR) project (NIA, 2015), awareness of clinical trials and other research projects will increase, which will likely decrease recruitment challenges and improve community-dwelling older adults’ participation in research in the future.

This study has some limitations. Costs used and calculated here only pertain to actual purchasing costs of recruitment-related materials such as brochures, mailings, ambassador payments, and media advertisement. Staff salary and time are not included and so costs presented are not comprehensive. In comparison with material costs, personnel costs and salary are typically more expensive. It is also possible that participants who enrolled in the study were exposed to multiple recruitment methods. For example, an older adult could have received a brochure from the direct mailings and lost it or forgot about it until they saw the study featured on television/radio, or they might have seen it on television, but were hesitant to contact the study team until after a friend (ambassador) discussed the study with them. The approaches reported here are self-reported and it is possible participants experienced recall bias when identifying the recruitment method, which they were exposed to. In 10% of our participants, recruitment sources were actually unknown. Finally, we did not track participant reasons for enrolling into CAPABLE and are unable to explore how these reasons relate to the different recruitment approaches used.

Conclusion and Recommendations

Recruiting primarily older adults with functional limitations and multiple comorbidities into research is difficult but CAPABLE achieved its goals using multiple approaches and continuous reevaluation of recruitment plans and materials. This study obtained its participants through government programs, community-based organizations, direct mailings,

brochures/flyers, media, PI's past participants, and the "Ambassador program." The approaches described here yielded the required sample size at costs consistent with other studies. Based on our experiences, we would recommend the following for successful recruitment, enrollment, and reporting of recruitment efforts for research in older adults. First, traditional recruitment methods including flyers, brochures, and mailings are successful approaches for recruiting this population and should be considered by researchers in recruiting older adults for research. Second, recruitment of older adults through the "Ambassador program" was least expensive and offers promise. This method was implemented in year 2 of the study after learning of its use in the Baltimore Experience Corps Trial with enrolled study participants. It was also successful in this study. Researchers using this approach should consider systematic implementation from the beginning of the study and fully document its progress. Ambassadors may be most relevant to recruit participants who are socially connected. Those who are homebound or less connected may not be reached by knowing Ambassadors. Depending on the study design and ethical precautions implemented, nonparticipants could also be ambassadors.

Third, future research in this population should document participant reasons for participation in research, which may inform evidence of the older adults' motivation to participate in research to support strategies for recruitment. Also, researchers may want to explore the perceptions of recruitment staff. Recruitment staff at the forefront understand the local research community and can inform the researcher about unforeseen factors affecting recruitment activities. Finally, recruitment research should consider more comprehensive analyses of cost of each method, including staff time required for community outreach and the effects of exposure to multiple recruitment methods.

Acknowledgments

The authors are grateful to the CAPABLE (Community Aging in Place, Advancing Better Living for Elders) participants for willingly giving their time to participate in the study and the CAPABLE staff who recruited these participants.

Funding

The author(s) disclosed receipt of the following financial support for the research, authorship, and/or publication of this article: The CAPABLE (Community Aging in Place, Advancing Better Living for Elders) study was supported by the National Institute on Aging grant #R01-AG04040100 and the Robert Wood Johnson Foundation Nurse Faculty Scholars Program #69351.

References

- Alecxih L, Shen S, Chan I, Taylor D, & Drabek J (2010). Individuals living in the community with chronic conditions and functional limitations: A closer look. Retrieved from http://www.lewin.com/content/dam/Lewin/Resources/Site_Sections/Publications/ChartbookChronicConditions.pdf
- Alsaeed D, Davies N, Gilmartin JF, Jamieson E, Kharicha K, Liljas AE, ... Walters K (2016). Older people's priorities in health and social care research and practice: A public engagement workshop. *Research Involvement and Engagement*, 2(1), Article 2.
- Baltimore Housing. (2015). LIGHT program. Retrieved from http://www.baltimorehousing.org/ghsh_light
- Bentley JP, Brown CJ, McGwin G Jr., Sawyer P, Allman RM, & Roth DL (2013). Functional status, life-space mobility, and quality of life: A longitudinal mediation analysis. *Quality of Life Research*, 22, 1621–1632. [PubMed: 23161329]

- Bonk J (2010). A road map for the recruitment and retention of older adult participants for longitudinal studies. *Journal of the American Geriatrics Society*, 58(Suppl. 2), S303–S137. doi:10.1111/j.1532-5415.2010.02937.x [PubMed: 21029058]
- Carroll CB, & Zajicek JP (2011). Designing clinical trials in older people. *Maturitas*, 68, 337–341. doi:10.1016/j.maturitas.2011.02.002 [PubMed: 21376485]
- Centers for Disease Control and Prevention, National Center for Health Statistics. (2016). Disability and functioning (noninstitutionalized adults 18 years and over). Retrieved from <http://www.cdc.gov/nchs/fastats/disability.htm>
- Clinical Research Consortium. (2016). Refer a friend. Retrieved from <http://crctrials.com/refer-a-friend/>
- Dai M, Roberto P, Tom S, Gentry E, & Stuart B (2017). Quantifying the cost of disability transitions in medicare. *Journal of Aging and Health*, 29(5), 788–804. [PubMed: 27129354]
- Ejiogu N, Norbeck JH, Mason MA, Cromwell BC, Zonderman AB, & Evans MK (2011). Recruitment and retention strategies for minority or poor clinical research participants: Lessons from the healthy aging in neighborhoods of diversity across the life span study. *The Gerontologist*, 51(Suppl. 1), S33–S45. doi:10.1093/geront/gnr027 [PubMed: 21565817]
- Ford ME, Siminoff LA, Pickelsimer E, Mainous AG, Smith DW, Diaz VA, ... Tilley BC (2013). Unequal burden of disease, unequal participation in clinical trials: Solutions from African American and Latino community members. *Health & Social Work*, 38, 29–38. [PubMed: 23539894]
- Gitlin LN, Winter L, Dennis MP, Corcoran M, Schinfeld S, & Hauck WW (2006). A randomized trial of a multicomponent home intervention to reduce functional difficulties in older adults. *Journal of the American Geriatrics Society*, 54, 809–816. [PubMed: 16696748]
- Hughes TB, Varma VR, Pettigrew C, & Albert MS (2017). African Americans and clinical research: Evidence concerning barriers and facilitators to participation and recruitment recommendations. *The Gerontologist*, 57, 348–358. [PubMed: 26553736]
- Katula JA, Kritchevsky SB, Guralnik JM, Glynn NW, Pruitt L, Wallace K, ... Gill TM (2007). Lifestyle interventions and independence for elders pilot study: Recruitment and baseline characteristics. *Journal of the American Geriatrics Society*, 55, 674–683. [PubMed: 17493186]
- Koroukian SM, Schiltz N, Warner DF, Sun J, Bakaki PM, Smyth KA, ... Given CW (2016). Combinations of chronic conditions, functional limitations, and geriatric syndromes that predict health outcomes. *Journal of General Internal Medicine*, 31, 630–637. [PubMed: 26902246]
- Lona M (2008). Recruitment and retention of older adults in aging research. *Journal of the American Geriatrics Society*, 56, 2340–2348. doi:10.1111/j.1532-5415.2008.02015.x [PubMed: 19093934]
- Luebbert R, & Perez A (2016). Barriers to clinical research participation among african americans. *Journal of Transcultural Nursing*, 27(5):456–463. [PubMed: 25754929]
- Marsh AP, Lovato LC, Glynn NW, Kennedy K, Castro C, Domanchuk K, ... LIFE Study Research Group. (2013). Lifestyle interventions and independence for elders study: Recruitment and baseline characteristics. *The Journals of Gerontology, Series A: Biological Sciences & Medical Sciences*, 68, 1549–1558. doi:10.1093/gerona/glt064
- Morrison K, Winter L, & Gitlin LN (2016). Recruiting community-based dementia patients and caregivers in a nonpharmacologic randomized trial: What works and how much does it cost? *Journal of Applied Gerontology*, 35, 788–800. [PubMed: 24799354]
- Musich S, Wang SS, Hawkins K, & Yeh CS (2015). Homebound older adults: Prevalence, characteristics, health care utilization and quality of care. *Geriatric Nursing*, 36, 445–450. doi:10.1016/j.gerinurse.2015.06.013 [PubMed: 26254815]
- National Institute on Aging. (2015). Recruiting Older Adults into Research (ROAR) toolkit. Retrieved from <https://www.nia.nih.gov/health/recruiting-older-adults-research-roar-toolkit>
- National Institute on Aging. (2017). Why do clinical trials need older and diverse participants? Retrieved from <https://www.nia.nih.gov/health/why-do-clinical-trials-need-older-and-diverse-participants>
- Nicholson LM, Miller AM, Schwertz D, & Sorokin O (2013). Gender differences in acculturation, stress, and salivary cortisol response among former soviet immigrants. *Journal of Immigrant and Minority Health*, 15, 540–552. [PubMed: 23224773]

- Ornstein KA, Leff B, Covinsky KE, Ritchie CS, Federman AD, Roberts L, ... Szanton SL (2015). Epidemiology of the homebound population in the United States. *JAMA Internal Medicine*, 175, 1180–1186. doi:10.1001/jamainternmed.2015.1849 [PubMed: 26010119]
- Ortman JM, Velkoff VA, & Hogan H (2014). *An aging nation: The older population in the United States*. Washington, DC: U.S. Census Bureau.
- Provencher V, Mortenson WB, Tanguay-Garneau L, Belanger K, & Dagenais M (2014). Challenges and strategies pertaining to recruitment and retention of frail elderly in research studies: A systematic review. *Archives of Gerontology and Geriatrics*, 59, 18–24. doi:10.1016/j.archger.2014.03.006 [PubMed: 24745811]
- Ridda I, MacIntyre CR, Lindley RI, & Tan TC (2010). Difficulties in recruiting older people in clinical trials: An examination of barriers and solutions. *Vaccine*, 28, 901–906. doi:10.1016/j.vaccine.2009.10.081 [PubMed: 19944149]
- Shearer NBC, Fleury JD, & Belyea M (2010). An innovative approach to recruiting homebound older adults. *Research in Gerontological Nursing*, 3, 11–18. [PubMed: 20128539]
- Smith A (2014). Older adults and technology use [Internet & American Life Project]. Washington, DC: Pew Research Center Retrieved from <http://www.pewinternet.org/2014/04/03/older-adults-and-technology-use/>
- Szanton SL, Leff B, Wolff JL, Roberts L, & Gitlin LN (2016). Home-based care program reduces disability and promotes aging in place. *Health Affairs*, 35, 1558–1563. doi:10.1377/hlthaff.2016.0140 [PubMed: 27605633]
- Szanton SL, Thorpe RJ, Boyd C, Tanner EK, Leff B, Agree E, ... Gitlin LN (2011). Community Aging in Place, Advancing Better Living for Elders: A bio-behavioral-environmental intervention to improve function and health-related quality of life in disabled older adults. *Journal of the American Geriatrics Society*, 59, 2314–2320. doi:10.1111/j.1532-5415.2011.03698.x [PubMed: 22091738]
- Wilding MJ, Seegert L, Rucic S, Griffin M, Kachnowski S, & Parasuraman S (2013). Falling short: Recruiting elderly individuals for a fall study. *Ageing Research Reviews*, 12, 552–560. doi:10.1016/j.arr.2012.12.002 [PubMed: 23274452]
- World Health Organization. (2016). Disability and health fact sheet. Retrieved from <http://www.who.int/mediacentre/fact-sheets/fs352/en/>
- World Health Organization, & U.S. National Institute of Aging. (2011). Global health and ageing. Retrieved from http://www.who.int/ageing/publications/global_health.pdf?ua=1

Table 1.Recruitment Sources for Enrolled CAPABLE Participants ($N = 300$).

Recruitment source	Percent (number enrolled)	Number screened	Percent enrolled from screened
Mailings	34.7 (104)	458	22.7 (104/458)
Government organizations	18.7 (56)	187	30 (56/187)
Community-based organizations	16.3 (49)	648	7.6 (49/648)
Ambassador program	15.3 (46)	230	20 (46/230)
Unknown	10 (30)	105	28.6 (30/105)
Media	3.7 (11)	57	19.3 (11/57)
Past studies	1.3 (4)	28	14 (4/28)
Total	100 (300)	1,713	17.5 (300/1713)

Note. CAPABLE = Community Aging in Place, Advancing Better Living for Elders.

Table 2.

Cost per Enrolled Participant by Recruitment Method in the CAPABLE Study.

Recruitment source	Number enrolled	Costs	Cost per participant
Mailings	104	US\$77,554.12	US\$745.71
Direct mail	87	US\$73,807.32	US\$848.36
DHMH	10	US\$1,426.80	US\$142.68
Brochures and flyers	7	US\$2,320.00	US\$331.43
Government organizations	56	US\$0	US\$0
Community-based organizations (Letters to Meals on Wheels clients)	49	US\$49	US\$1.00
Ambassador program	46	US\$1,025.00	US\$22.28
Unknown	30	US\$0	US\$0
Media	11	US\$2,825.00	US\$256.82
Radio advertisement	4	US\$2,000.00	US\$500.00
Aging directory advertisement	0	US\$825.00	US\$0
Newspaper articles	6	US\$0	US\$0
Television	1	US\$0	US\$0
Past studies	4	US\$0	US\$0
Total/cost per participants for methods with calculated costs	210	US\$81,453.12	US\$387.87
Total	300	US\$81,453.12	US\$271.51

Note. DHMH = Department of Health and Mental Hygiene.