

PARTICIPANT RECRUITMENT TO A RANDOMIZED TRIAL OF A COMMUNITY-BASED BEHAVIORAL INTERVENTION FOR PRE- AND INTERCONCEPTIONAL WOMEN Findings From the Central Pennsylvania Women's Health Study

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Background. Community-based health studies rely on the ability of researchers to successfully recruit and retain participants from target populations, rather than from clinical settings. Many prior women's health studies have recruited in urban and suburban areas, but rural populations pose specific challenges. We describe the recruitment strategies employed in the Central Pennsylvania Women's Health Study to recruit 692 women in 15 low-income rural communities to a randomized trial of a behavioral intervention for pre- and interconceptional women.

Methods. The organization of the project is described. Qualitative (e.g., focus groups of local project facilitators) and quantitative methods (e.g., surveys of participants) were used to assess the effectiveness of various recruitment techniques and the characteristics of the final enrolled sample.

Results. A triangular recruitment approach was used in 15 communities, which included partnering with local community organizations and use of both active and passive recruitment techniques. The most effective recruitment methods were (1) actively recruiting women in social service and childcare settings, (2) use of a toll-free project telephone number printed on all passive recruitment material, and (3) the combination of passive and active recruitment in educational settings. Together, these methods successfully achieved the recruitment goals: enrolling participants who were more likely to be rural, poor or near poor, non-white, and to have less access to health care than their counterparts residing in the target communities.

Conclusions. Successful recruitment of typically hard-to-reach women, such as low-income rural women, is possible through implementation of a triangular recruitment approach in local communities.

Community-based health studies rely on the ability of researchers to successfully recruit and retain participants from various target populations. In contrast with studies like clinical drug trials, where par-

ticipants are often exclusively referred by medical care providers, population-based researchers seek to enroll participants from all sectors of the community including those without access to health care. Prior population-based studies of women's health have described recruitment in urban and suburban areas (e.g., Gaps-tur & Fitzgibbon, 2005; Promislow et al., 2004), but rural populations are seldom discussed.

This paper addresses the methods used to successfully recruit women in low-income, rural communities to a randomized trial of a health behavior change intervention for pre- and interconceptional women. It

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is especially important to include rural women in behavior change interventions because evidence suggests they are less likely to practice beneficial health habits than are their suburban neighbors (Eberhardt et al., 2001). Rural residents are more likely than urban residents to be obese and physically inactive (Patterson, Moore, Probst, & Shinogle, 2004), to live in poverty (US Department of Agriculture, 2004), to be less educated, and to have differentially poorer access to health care (US Department of Health and Human Services, 2005).

Background: The Recruitment Literature

Whether the target population is rural or urban, previous studies involving health promotion interventions do not point to a single “best” recruitment method. When discussing recruitment, researchers tend to use the designation “passive” or “active” to classify different techniques. Popularized by Lee et al. (1997), the terms encompass multiple techniques differentiated by the actions of the researchers. Active recruitment techniques entail recruiters identifying and contacting potential participants either face-to-face, by telephone, or through the mail and personally inviting them to join the study. Passive recruitment, on the other hand, refers to distributing information about the study throughout the community by means of mass media channels, mass mailings, speaking engagements, and/or literature distribution and then passively waiting for potential participants to make contact (Lee et al., 1997). Examples of active methods, passive approaches, and the importance of community involvement in recruitment efforts are discussed below.

One of the most common methods of active recruitment involves approaching participants directly to determine their interest and eligibility. Generally, recruiters visit locations where people are known to congregate, such as stores, churches, doctor’s offices or clinics, and libraries. When enrolling women face-to-face in central North Carolina, Daniels et al. (2006) found that higher retention was achieved when recruiters took a little extra time to answer participant questions and share pertinent study information with them. Although smaller numbers of participants may be recruited using active recruitment, a study conducted by Gilliss et al. (2001) in the San Francisco Bay area found that face-to-face recruitment approaches resulted in a higher percentage of eligible women enrolling in the study and lower attrition rates relative to the passive approaches they had also tried. Face-to-face recruitment affords recruiters the opportunity to answer questions and explain the research to participants who might otherwise not understand the study because of low literacy skills. One potential drawback to

relying solely on active recruitment techniques is the increased amount of recruiter time that must be invested (Sarkin, Marshall, Larson, Calfas, & Sallis, 1998).

Passive recruitment methods, such as mass mailings and broadcast and print media, can be advantageous in recruiting large numbers of participants from disparate populations, including rural and urban settings (McIntosh, Ossip-Klein, Spada, & Burton, 2000). As a recruitment precursor in rural areas, Greenblatt Ives, Kuller, Schulz, Traven, and Lave (1992) suggest using passive approaches to “market” your study well in advance of the actual recruitment. Although generally more cost effective than active methods, using passive techniques alone can result in higher rates of ineligible women (Gilliss et al., 2001) and lower percentages of lower socioeconomic status women (Lewis et al., 1998).

Often overlooked during recruitment planning, building relationships with community members is an important step that can positively impact the recruitment process. Having struggled with the recruitment of an ethnically diverse population of women in the Sacramento, California area, Keyzer et al. (2005) recognized the importance of building ongoing relationships with community leaders *before* undertaking the recruitment process. Community members who are comfortable with the researchers and understand the study’s purpose are more likely to allow access to their clients (Brown, Long, & Miliken, 2002). Alvarez, Vasquez, Mayorga, Feaster, and Mitrani (2006) credit a close relationship with community administrators and organizations with their success in recruiting a traditionally hard to reach population of HIV-positive women in Southern Florida. In a large review of the literature, Levkoff and Sanchez (2003) noted that when researchers and community members failed to establish compatible goals, recruitment attempts suffered.

Building on aspects of successful recruitment strategies from previous research, the authors developed a comprehensive, multifaceted approach for recruitment for the Central Pennsylvania Women’s Health Study (CePAWHS). We provide a brief overview of CePAWHS, discuss the steps taken to establish the recruitment foundation for the study, describe our triangular recruitment approach, and discuss the results of our recruitment efforts.

Methods

CePAWHS Context

Phase I of CePAWHS was conducted in 2004 and 2005 in a 28-county region of central Pennsylvania. This representative survey of reproductive-age women provided a baseline of health status and prevalence of risk factors for adverse pregnancy outcomes in the target population (Weisman et al., 2006). The CePAWHS Phase II community-based intervention,

Strong Healthy Women (Downs et al., in press), was created specifically to address modifiable risk factors identified in the Phase I survey. Phase II focused on low-income rural communities because women in these communities tended to be at high risk with respect to many of the health factors measured in Phase I. US Census data were used to select 15 local study communities within the study region that had comparatively higher proportions of poor, rural, and non-white women of childbearing age. Eligibility criteria for Phase II were: age 18–35 years, primary residence in 1 of the 28 target counties, not pregnant but capable of becoming pregnant, and English speaking.

The project infrastructure, including organizational collaborators and community partners, is important because the project structure provided the foundation for Phase II recruitment methods. CePAWHS is a collaborative project coordinated by the Pennsylvania State University College of Medicine. Project collaborators for Phase II were the Family Health Council of Central Pennsylvania, Inc. and the Lock Haven University of Pennsylvania. All 3 organizations were well known and respected in the study's 28-county target region, with multiple organizational locations throughout the project area. Investigators from Penn State University were responsible for designing the recruitment approach, developing recruitment materials, and training intervention group facilitators at the local community level. CePAWHS organizational collaborators were responsible for hiring facilitators and implementing the participant recruitment approach at the community level.

Approximately 1 year before recruitment was scheduled to begin, community members from each of the 28 target counties representing local government, health care organizations, private businesses, and not-for-profit groups, were invited to serve on the project Steering Committee. Steering Committee members suggested recruitment strategies to the investigators and provided access to local community groups to help with recruitment in the 15 selected Phase II communities.

A basic assumption of the project was that the Phase II recruitment methods needed to be tailored to the geographic and sociodemographic characteristics of each low-income rural community. Although all project facilitators were trained in recruitment techniques and provided with project-specific recruitment materials branded with the CePAWHS logo and including institutional review board (IRB)-approved recruitment text, field facilitators were expected to exercise judgment and creativity in their implementation of recruitment methods, within the basic guidelines provided by the investigators. Specifically, all facilitators were instructed to adhere to the ethical dictum of voluntary participation. No business, social service agency, or instructor was to receive compensation for

recruited participants nor were they to be apprised of participant's enrollment status. Voluntary status was to be confirmed during the consent process.

Qualitative and Quantitative Data

The data on recruitment methods and effectiveness come from both qualitative and quantitative data collection approaches. Qualitative data includes systematic feedback from the project facilitators from 3 sources: 1) ongoing feedback from project collaborators at regular CePAWHS meetings held throughout the fieldwork period, 2) 2 focus groups of 4–6 facilitators held at the conclusion of the recruitment phase, and 3) semistructured telephone interviews with 13 facilitators who were not available to attend the focus groups. In all cases, facilitators were asked to provide an inventory of recruitment methods used in their communities and to share their perceptions of each method's effectiveness.

One of the 15 target communities was chosen to maintain quantitative recruitment records for the project. Logs were kept by the community facilitators detailing how women had learned about the study, their eligibility status, and whether they were eventually enrolled in the study. This information was then used to determine which recruitment methods yielded the most eligible participants. Additional quantitative data came from the questionnaires completed by all enrolled women; these questionnaires obtained basic sociodemographic and health care access information that was compared with that of women in the Phase I random-digit dial survey of women ages 18–35 residing in the same communities. (See Weisman et al. [2006] for further description of this survey.)

Results

Triangular Recruitment Approach

A triangular recruitment approach was implemented in all 15 target communities. This approach combined the identification of a local public service, not-for-profit, health care, or educational community partner with the use of both active and passive recruitment methods. Recruitment materials designed specifically for CePAWHS were an essential ingredient of both the active and passive recruitment methods. Briefly, these materials consisted of stand alone posters and posters with removable postage-paid, return postcards; stand-alone flyers and flyers with rip-tabs containing contact information; counter cards (heavy stock, postcard-sized informational cards), and mailing inserts. All were designed using the CePAWHS project logo (purple paw print) and displayed the project's website, eligibility requirements, project collaborator names, and IRB approval information. Facilitators used promotional gifts (pens, pencils, notepads, and pins bear-

ing the CePAWHS name and/or purple paw print) in conjunction with community introductions and as thank you gifts for the recruited participants.

Table 1 is a compilation of qualitative data across the 15 communities showing the community partnerships that were formed, the types of passive and active recruitment methods used, the settings in which methods were implemented, and facilitator feedback on method effectiveness. Facilitators partnered with an assortment of community organizations including health services organizations, libraries, YWCAs and YMCAs, community centers, hospitals, business schools and universities. Each community partner offered a convenient location and access to women who might be interested in joining the study; in return, each partner gained benefits, such as favorable press coverage and enhanced community visibility, by

being associated with the project. Community centers were chosen in particularly rural areas because they afforded a central location with which participants were already familiar. For the CePAWHS project, health and human service representatives who already provided services to the target population proved to be a good conduit between the community and the researchers.

Most facilitators utilized active and passive recruitment methods in a variety of different settings and reported varying degrees of success for each. The most successful methods and settings reported by project facilitators were 1) actively speaking with women in confined settings (waiting for a social service appointment or picking up their young child), 2) use of a central phone number (preferably toll-free) after passively distributing recruitment

Table 1. Community Partners, Passive and Active Recruitment Methods Used, Types of Settings Where Methods Were Used, and Facilitator Comments Across the 15 Project Communities

	Settings Where Methods Were Used	Facilitator Comments
Community partners ^a Libraries, Health Services Organizations, Business School, University, Hospitals, Community Centers, YMCAs, and YWCAs; community partnered with YMCAs, health services organizations, libraries, community centers and hospitals		
Passive recruitment methods		
Central telephone number	Each project collaborator provided a telephone number	Essential for recruitment materials; toll-free numbers worked best
Counter cards ^b , posters, flyers (with and without rip-tabs ^c)	Childcare parent folders, WIC, ^d Planned Parenthood, and family planning waiting rooms	Great settings to leave materials, receptive clients, generated many referrals ^e
	Public charities, churches and libraries, retail, convenience, and grocery stores, laundromats, beauty parlors	Mixed reviews; none of these settings were consistently beneficial
Posters with removable postage-paid return postcards, flyers with rip-tabs	Clinic waiting rooms, hospital restrooms, community bulletin boards	Cards disappeared frequently but facilitators did not receive a large number back
Media	City or community newspaper ads, articles	Ads worked best in conjunction with newspaper articles
Presentations	Social service agencies, community and technical schools	Professors were interested and helpful
Mass mailings	Small insert in regularly scheduled utility bill	A unique opportunity that resulted in eligible women joining
Active recruitment methods		
Speaking with individual women, one-on-one	Head Start and subsidized childcare centers, WIC, Planned Parenthood, and Family Planning	Excellent places to recruit; clinic clients and mothers of small children were very receptive
	Farm shows and health fairs	Mixed results, did get some referrals
	Community, business, and technical schools	Fairly successful recruitment
	Housing projects in low-income neighborhoods	Not great recruitment but good locations
	Malls and stand alone stores	A lot of work to find few interested or eligible women

^aMore than one community partnered with YMCAs, health services organizations, libraries, community centers and hospitals.

^bCounter cards are heavy stock, postcard sized informational cards.

^cRip-tabs contained CePAWHS contact information.

^dWIC stands for the Women, Infants, and Children Program and is a supplemental USDA food program for pregnant women and their children.

^eParticipants were referred to the study by their relatives, friends, co-workers, educators, and health care providers.

material throughout the community, and 3) using a combination of active (speaking with women) and passive (presentations and literature distribution) methods in educational settings. In conjunction with recruitment methods, facilitators pointed out that holding recruitment sessions and eligibility screenings in central, well-known locations at staggered times during the day and evening and on multiple days of the week was crucial for recruitment success.

Community Case Study

As noted, 1 community was chosen to collect quantitative data and provide a case study of the various recruitment methods. For their community partner, facilitators chose a health services organization whose director served on the CePAWHS Steering Committee. The chosen partner shared an interest in improving women's health and provided both access to clients and a central facility in which to hold recruitment and eligibility screening sessions. This partner also provided helpful contacts and introductions to other local organizations, local government offices, businesses, and social service agencies at which the project facilitators distributed recruitment materials.

The recruitment settings and methods used in this community are presented in Table 2. Also displayed in the table are the percentages of prescreened women derived from each setting (women who had either

called the toll-free phone number expressing interest in the study or had spoken with a facilitator in person), the actual percentage of women enrolled in the study by recruitment setting, and the recruitment yield by setting. Women not enrolled into the study either did not meet eligibility criteria or decided, after having the study explained to them, that they did not have the time necessary to participate in study activities.

In this community, the use of both active and passive recruitment methods at social service agencies accounted for the largest percentage of prescreened participants (27%) and the largest percentage of enrolled women (26%). Mass mailings of utility bill inserts introduced 18% of all prescreened women to the study, and this method contributed 23% of the total enrolled. Referrals from relatives, friends, co-workers, health care providers, and educators generated an additional 18% of the prescreened women, and contributed 12% of those enrolled in the study. Active and passive recruitment methods used in shops and convenience stores brought in 12% of the community's prescreened women and 19% of those enrolled in the study. The highest recruitment yield, defined as the percentage of prescreened women from a setting who actually enrolled in the study, was obtained from active and passive recruitment in shops and convenience stores (100%). This was followed by an 83% recruitment yield from mass mailing inserts in utility bills, and a 71% recruitment yield from presen-

Table 2. Community Partner, Recruitment Settings and Methods of Recruitment Used in One Community, with Corresponding Percentage of Women Prescreened, Percentage of Women Enrolled, and Recruitment Yields

Setting	Recruitment Method ^a	Prescreened ^b (<i>n</i> = 67), %	Enrolled ^c (<i>n</i> = 43), %	Recruitment Yield:% of Prescreened Ultimately Enrolled ^d
Community partner: Health services organization				
Social service agencies (e.g. WIC, and family planning)	(A) Speaking with individual women (P) Presentations, counter cards, ^e flyers, and posters	27	26	61
Small insert in regularly scheduled community utility bill	(P) Mass mailing	18	23	83
Word of mouth from relatives, friends, professors, and co-workers	(P) Referral	18	12	42
Head Start and subsidized childcare centers	(A) Speaking with individual women (P) Flyers and counter cards	15	9	40
Coffee shops, retail shops, food and gas convenience stores	(A) Speaking with individual women (P) Flyers and counter cards	12	19	100
Community college and technical school	(P) Presentations, posters, flyers, and counter cards	10	12	71
Total		100	101 ^f	

Abbreviations: (A), active; (P), passive.

^aAll recruitment materials displayed a toll-free number and calls were answered by a cheerful, helpful individual.

^bThe percentage of all women prescreened for the study who came from each of the recruitment settings.

^cThe percentage of all women actually enrolled in the study who came from each of the recruitment settings.

^dFor each recruitment setting, the percentage of prescreened women in that setting who were ultimately enrolled in the study.

^eCounter cards are heavy stock, postcard sized informational cards.

^fPercentage does not total 100% due to rounding.

Table 3. Characteristics of Phase II Enrollees Compared With Phase I Pre- and Interconceptional Women Ages 18–35 in Target Counties^a

	Phase I (<i>n</i> = 257), %	Phase II (<i>n</i> = 692), %	<i>p</i> ^b
Household income <\$30,000 ^c	23	44	<.0001
Poor or near poor ^d	34	63	<.0001
Rural residence ^e	33	51	<.0001
High School graduate or less	35	41	NS
Not white, non-Hispanic	3	9	.004
Not married or living with partner	28	49	<.0001
Never pregnant (preconceptional)	37	43	NS
Visit 1 place when sick/need health advice	93	76	<.0001
Seen a doctor, past 12 months	94	83	<.0001
Had insurance gap, past 12 months	20	29	.004

^aOf Phase II enrollees, 95% resided in the target counties; the remaining 5% resided in adjacent counties.

^bBased on χ^2 test.

^cCategories include income <\$30,000, \geq \$30,000, and Don't Know.

^dIncome less than twice the federal poverty threshold based on household composition.

^eBased on RUCA version 2.0 zip code approximation codes (Hart, Larson, & Lishner 2005).

tations, posters, flyers, and counter cards used in educational settings.

Overall Enrolled Sample

Table 3 shows the characteristics of the women enrolled in Phase II from all 15 participating communities compared with the women surveyed in Phase I who resided in the target communities and were of similar age. This table illustrates that the recruitment efforts successfully enrolled women who were significantly poorer (63% vs. 34%), more rural (51% vs. 33%), more likely to be non-white (9% vs. 3%), more likely to be unmarried or not living with a partner (49% vs. 28%), less likely to have 1 place to go when sick or need health advice (76% vs. 93%), less likely to have seen a doctor in the past 12 months (83% vs. 94%), and more likely to have had a gap in health insurance coverage during the past 12 months (29% vs. 20%) compared with the Phase I sample. Thus, the recruitment strategies used resulted in a sample that reflected the poorer and more rural segments of the target communities, as intended.

Discussion

The purpose of this paper was to describe the techniques used by CePAWHS investigators in our successful recruitment of low-income and minority women from rural communities into a randomized trial of a community-based behavioral intervention. This paper adds valuable information to the existing

literature by introducing the triangular recruitment approach and specifically addressing recruitment of women in rural settings.

Facilitators found the triangular recruitment approach of selecting community partners and conducting both active and passive recruitment in a variety of settings to be a highly successful strategy for recruitment in rural areas. Those facilitators who established a mutually advantageous relationship with a community representative before employing a mixture of active and passive recruitment methods were the most successful. CePAWHS facilitators found that formal partnerships, particularly with community-based health and human service providers, resulted in a greater degree of benefit for both entities than more loosely constructed relationships. It was important that all community partners had a clear concept of what their direct benefit(s) would be from working with the CePAWHS project. When initially approached by a CePAWHS facilitator, it was reported that many community-based social service providers identified positive media coverage for its agency as a benefit from partnering with the study. Other community agencies and businesses viewed direct involvement in the recruitment of participants into CePAWHS as a way to contribute something positive that was health related to its community, to health services research, or as a means to increase awareness of its services to the public.

The study findings underscore the importance of establishing a toll-free telephone number before instituting any additional recruitment techniques. Project collaborators found that employing a cheerful, helpful individual to answer calls was particularly advantageous. Benefits from this approach included having an efficient way to answer potential participants' questions and conduct eligibility prescreenings as well as the generation of good will among community members resulting from direct interaction with study personnel. Although we found that the most effective recruitment methods involved actively recruiting women from waiting rooms or childcare settings and distributing materials and making presentations in educational establishments, other methods were also helpful. After identifying a specific recruitment approach that gained their interest, a number of women also mentioned that they had heard of the study from one or more other source(s). One woman in particular mentioned having seen or heard about the study in 5 different settings.

Passive recruitment was conducted in most communities by distributing recruitment materials in an assortment of different settings so that as many women as possible would learn of the study. Social service agencies were generally happy to make flyers and counter cards available to their clients. Representatives of not-for-profits, agencies, hospitals, and child-

care centers who took an interest in the study allowed posters to be displayed on their walls, doors, and in the women's restrooms. The postage-paid, return postcards and the rip-tabs attached to the flyers were quite popular and needed to be replenished regularly. Facilitators found the placement of counter cards or flyers inside childcare parent folders to be a particularly good approach for reaching eligible mothers. Educational establishments also proved to be an excellent venue. Most of the community colleges, business, or technical schools approached were willing to allow presentations to their students, poster displays, flyer distributions, and counter card placement on tables in eating or sitting areas. A few facilitators reported that professors were so interested in improving women's health that they personally referred their female students to the study.

It should be noted that not all social service agencies and community venues were eager to partner in CePAWHS recruitment. Some facilitators encountered community members who balked at the idea of having their clients "solicited" for the purpose of research and consequently refused to display any recruitment material. When we questioned facilitators further about this issue, we discovered that many of the community members who had expressed fear of solicitation were the organizations' front-end personnel. It is quite possible that facilitators would have been more successful had they explained the project to the organizations' managers or administrators instead.

Facilitators discovered that although some retail and convenience stores were delighted to display recruitment materials, others wanted nothing to do with the project. It was not unusual for a convenience/gas store in 1 community to approve hanging flyers or displaying materials on the counter and to have the same store in the next community refuse. Chain store personnel were almost uniformly unable or unwilling to approve the hanging or distribution of recruitment materials to their customers and most refused to share the materials with their own female employees. Occasionally, facilitators found business owners who were willing to place flyers in their employees' paychecks and this practice often resulted in eliciting interest from eligible women. Mass mailing of inserts in utility bills proved to be an inexpensive way to introduce the study to the community, as were presentations made in different venues. Newspaper advertisements generated some interest, especially when ads were placed in the same edition that featured a CePAWHS article.

This study was limited by the exclusion of non-English-speaking women. The triangular recruitment approach should be tested using active and passive multilingual recruitment materials. Another study limitation was the limited amount of quantitative data collected directly relating specific methods and settings of recruitment to the number of women re-

cruited. It was the case, however, that the quantitative data collected from 1 community combined with the qualitative data collected from all of the communities provided considerable insight into the willingness of rural women to participate in research and effective methods to reach them. Although it would have been helpful to include recruitment yields from other studies for comparison purposes, we were unable to find recruitment literature describing studies with a similar intent and target population.

In sum, CePAWHS successfully recruited women who reflected the poorer and more rural segments of our target communities into a community-based behavioral intervention. The multiplicative beneficial effects of securing community partners and conducting active and passive recruitment were apparent in our ability to recruit typically hard-to-reach women. Future studies should test the effectiveness of the triangular recruitment approach in different settings and with different target populations.

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