Community-Based Recruitment Strategies for Young Adult Pacific Islanders into a Randomized Community Smoking Cessation Trial

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ABSTRACT

Background. Lung cancer represents the leading cause of cancer death for Pacific Islanders in the U.S., but they remain underrepresented in studies leading to the lack of evidence-based cessation programs tailored to their culture and lifestyle.

Objectives. This paper aims to describe the development of culturally tailored and community informed recruitment materials, and provide lessons learned regarding implementation and adaptation of strategies to recruit Pacific Islander young adult smokers into a randomized cessation study.

Methods. Development of recruitment materials involved a series of focus groups to determine the cessation program logo and recruitment video. The initial recruitment strategy relied on community-based participatory research partnerships with Pacific Islander community-based organizations, leaders and health coaches with strong ties to the community.

Results/Lessons Learned. While the recruitment materials were well received, initial strategies tapered off after the first three months of recruitment resulting in the need to revise outreach plans. Revised plans included the creation of a list with over 200 community locations frequented by Pacific Islander young adult smokers, along with the hiring of part-time recruitment assistants who reflected the age and ethnicities of the desired cessation study participants. These materials and strategies ultimately yielded n=316 participants, 66% of whom were recruited by the revised strategies.

Conclusions. Community-based participatory research approaches not only inform the design of culturally-tailored intervention recruitment material and strategies, but also result in innovative solutions to recruitment challenges to address the National Cancer Institute's gaps in science regarding small populations.

KEY WORDS: Recruitment strategies, Pacific Islander, young adults, randomized control trial, tobacco cessation, hard-to-reach populations

BACKGROUND

Lung cancer remains the leading cause of cancer death for Pacific Islanders in the U.S.[1] Pacific Islanders originated from Melanesia, Micronesia, and Polynesia. Currently there are1.2 million Pacific Islanders in the U.S.,[2] and they experience the highest levels of smoking amongst almost all other ethnic/racial groups. Between middle and high school youth, data from the 2014-2017 National Youth Tobacco Survey reported that Pacific Islanders had the highest rates of smoking (45.1%) and current smoking (23.4%), followed by American Indians/Alaska Natives (43.8% and 20.6%), Hispanics (35.1%, 14.6%), Blacks (32.3%, 11.5%), Whites (32.0%, 15.3%), and Asians (16.3%, 5.0%).[3] Among 18 year old Pacific Islander , smoking rates decreased from 31.4% in 2002-2005 to 22.8% in 2010-2013, but remained higher than Hispanics and Asians.[4] From 2005 to 2015 cigarette smoking declined for adolescents and young adults,[5] due to the rapid increase in electronic cigarette use;[6] cigarette smoking quit rates remain the lowest of all age groups.[7] Unfortunately, a review of the National Cancer Institute's Research-Tested Intervention Programs indicate there are no evidence-based smoking cessation programs tailored to the culture and lifestyle of Pacific Islanders.[8]

Recruitment of "small subpopulations" to trials constitutes a significant barrier to smoking cessation intervention development and testing, necessitating the development of novel outreach and engagement methods.[9, 10] Unfortunately people of color are extremely underrepresented in research.[11, 12] There is a paucity of research on the facilitators of successful recruitment of small populations into trials.[12, 13] Growing evidence supports recruitment efforts among hard to reach and underserved populations. Recruitment efforts involved community leaders and role models of the same race and ethnicity as the population to aid in intervention development and participant recruitment.[14-16] For instance, a chain-referral sampling technique

utilizes informal research assistants,[14] and flexible research designs allow for adaptation to recruitment barriers.[17] In addition, community-based participatory research (CBPR) approaches contribute to positive recruitment outcomes.[13]. The CBPR approach engages community members so that their extensive set of skills, strengths, knowledge, and resources can facilitate the planning and conduct of meaningful research with sustainable outcomes leading to improved health and well-being.[18, 19]

Recruitment strategies of young adults. The challenges of recruiting young adults into smoking and other research studies are vast. Race and ethnicity are predictors of low recruitment, attrition, and poor outcomes in studies of smoking cessation.[20, 21] Compared to traditional recruitment approaches, web-based strategies (such as online advertising and social media platforms) are promising in recruiting men, young adults, people of color, those with a high school education or less, and dependent smokers.[22] The bulk of smoking cessation studies among young adults target colleges and universities.[23] Young adult Pacific Islanders are even harder to reach due to their small population size and underrepresentation in college and university settings. Only 18% of Pacific Islanders aged 25 years and older achieve a bachelor's degree.[24] Furthermore, non-college-educated Pacific Islander adults between 25-32 years of age exhibit more unhealthy behavioral profiles including, cigarette smoking.[25] To date, no studies have focused on the factors that may encourage or discourage Pacific Islander young adults from taking part in research, in particular smoking cessation intervention studies.

Utilizing a CBPR approach, we developed the *Motivating Pasifika Against Cigarettes and Tobacco (MPACT)* Program, a theory-based, culturally attuned, and multi-component smoking cessation intervention to address the high cigarette smoking rates among young adult Pacific Islanders in Southern California.,[10] An important aspect of the MPACT study was to

develop and assess strategies for engagement and recruitment for the Pacific Islander young adult community. This paper aims to: 1) detail the development of culturally tailored and community informed recruitment materials and strategies, and 2) describe our experiences in implementing these strategies to recruit Pacific Islander young adult smokers into the MPACT study.

METHOD

Overview. The MPACT study employed a randomized controlled - trial design with waitlist controls to test the efficacy of a culturally tailored, web-based cigarette smoking cessation intervention on quit rates among a cohort of Pacific Islander young adult smokers. Participant eligibility included: self-identification as a Pacific Islander (e.g., Chamorro, Native Hawaiian, Samoan, Tongan); aged 18-30 years old, living in Southern California (now and for the next year); consuming at least 100 cigarettes in lifetime; smoked an average of four or more days per week in the past month; willing to make a quit attempt in the next 30 days; not currently in a smoking cessation program or using other cessation method; having a cell phone with a text messaging plan, weekly access to a computer with internet; and ability to meet in-person to complete all assessments. Participants signed up for the study through a Facebook account and were randomly assigned to the intervention or wait-list control condition. All participants received a $20 gift card as compensation for their time and travel at the end of each in-person assessment, which included a computer-assisted pre-test survey and a card game. Another survey and breath test were given in-person during immediate, three- and six-month follow-up assessments. We entered all participants who completed the four assessments into a raffle to win one of two iPads valued at $500 each. The two university IRBs approved the study focus group,

survey and breath test protocols, and the lead investigators registered the study as a CONSORT clinical trial (#NCT03238456). We obtained signed informed consent from each participant prior to their enrollment in the focus groups or intervention trial.

We employed CBPR strategies at all stages of intervention development, testing and results. There were two academic and four community organization partners: California State University, Fullerton; Claremont Graduate University; Guam Communications Network, Inc.; Orange County Asian Pacific Islander Community Alliance; Pacific Islander Health Partnership; Samoan National Nurses Association; and Special Services for Groups/Tongan Community Service Center. These six partners were founding members of the NCI-funded U54 Community Network Program Center in Southern California called *WINCART: Weaving an Islander Network for Cancer Awareness, Research and* Training. For the development of the MPACT smoking cessation program, the community partners developed the intervention ideas and delivery approaches, while the academic partners secured the IRB approvals and grant funding that was used to support key personnel in all participating organizations. Once initiated the community and academic partners met monthly over the course of two years to design the intervention messages and materials, develop recruitment strategies, train study staff, and monitor all implementation and data collection activities. Please see our previous two publications that further detail the center's initiation in 2005, and the mutually-supportive roles of the community-academic steering committee, co-development of all research study ideas, co-ownership of data, and collaborative dissemination to both community and academic audiences in a previous publication.[26, 27]

Intervention and Control Conditions. The MPACT Intervention included eight educational modules that were tailored to Pacific Islander culture (such as through images,

family influences, and foods, as described in a previous publication).[27] Each module took approximately 20 minutes to complete, and supplied information on different subjects such as smoking mortality and morbidity, cessation benefits, cessation strategies, stress reduction, combatting temptation, encouragement, social support, and avoiding relapse. Participants accessed the free eight modules through Facebook. In addition, each intervention participant received ongoing supportive text messages throughout the educational period and regular check-ins by telephone or text message with a Pacific Islander health coach. Participation in the MPACT program was approximately one hour per week for a total of eight weeks. Participants in the control arm of the study received a link to the American Lung Association's "Freedom from Smoking" program (https://www.freedomfromsmoking.org/), a handout with smoking cessation resources in their area, and a bi-weekly generic text message. Following the final follow-up assessment at six months, all control group participants received an invitation to view the MPACT intervention.

Recruitment Materials. We developed the MPACT logo and recruitment flyer throughout the year long CBPR planning process. This process was informed by a series of three focus groups with a total of n=23 Pacific Islander young adult smokers. The focus groups generated ideas for the logo and recruitment flyer, developed initial designs, and refined the designs into the final MPACT products. Focus group questions were developed by the academic study team members based upon their past experience in smoking research. As shown in Table 1, each focus group elicited thoughts and recommendations for the appearance of the cessation program. For example, one question asked, "Write two to three adjectives that describe the traits or personality that the logo should communicate. What image do you associate with your word?" The example could be "determined," with the image of climbing to the top of the mountain. In

addition, participants were shown a series of draft program names and logos. Participants were asked to comment on their overall thoughts, what they liked and disliked, what would make it more appealing, and what would make it powerful. Between focus group #1 and #2, the study team contracted a Pacific Islander graphic designer (who designed several previous WINCART projects) to mockup different logos and recruitment flyer designs that were evaluated in focus group #3.

*** INSERT TABLE 1 ABOUT HERE ***

In addition, based upon feedback from focus group #1, a short video was developed to aid in recruiting Pacific Islander young adult smokers. The MPACT community organization partners developed the video concept, and sent it to a Pacific Islander videographer to develop the script and shoot/edit the video. The video included a storyline focused on two children playing basketball on their driveway. Upon seeing an adult family member attempt to light a cigarette, the two children ask the adult for a cigarette to try. The adult declines the child's request and does not light the cigarette. The video ends with a voiceover encouraging viewers to learn more about the MPACT smoking cessation program. The video shoot took place at the home of a community partner and utilized community volunteers to play the adult and children. The video concluded with directions to the MPACT Facebook page for further information (see Image 1). The entire community and academic study team reviewed and commented on the video draft, resulting in a final 30-second video.

Figure 1. Screenshot from MPACT recruitment video

Recruitment Strategies. we targeted a non-probability sample of 240 smokers to be recruited by a combination of leaders from community partner organzations, and newly-identified Pacific Islander health coaches with strong ties to the community. The health coaches were recruited by academic and community organizations. We hired health coaches as MPACT staff to conduct recruitment through their extensive networks of social and cultural groups, churches and faith-based organizations, friends, colleagues, classmates, and family members. A total of six young and middle-aged adult coaches were hired from the community. The academic team trained the health coaches on all study protocols, after which the coaches conducted recruitment on a rolling basis throughout the first one and-a-half years of the two-year intervention trial timeframe.

RESULTS/LESSONS LEARNED

Recruitment strategies created positive feedback and interest in the MPACT program. However, by the third month of study recruitment, recruiters exhausted their initial networks and recruitment numbers declined. In order to reinvigorate recruitment, the study team brainstormed two new strategies that did not require any changes to the IRB-approved protocols. First, community leaders and health coaches suggested expanding the numbers of part-time community-based recruitment assistants who had numerous connections to different networks of Pacific Islander young adults. We identified these assistants through word of mouth, and included friends of health coaches who frequented nightclubs, community colleges, restaurants and other gathering places not previously accessed by MPACT staff. Each assistant was compensated $15 per referral of a participant who successfully enrolled in the MPACT program. A total of 61 participants were successfully recruited and enrolled via these recruitment assistants.

Next, the study team brainstormed a list of places frequented by Pacific Islander young adult smokers to be targeted by health coaches and recruitment assistants. Over the course of two in-person meetings, the resulting list consisted of the names and locations of over 200 sites. The identified sites included churches, community festivals, dance groups, recreation leagues (e.g., rowing, rugby), as well as bars and restaurants frequented by Pacific Islander young adults. Throughout the remainder of the year, recruitment occurred in a rolling manner at these sites. All MPACT study staff (including health coaches and recruitment assistants) met monthly to share their experiences. The MPACT study staff shared instances of making special accommodations to work with each participant's schedule and specific situation, holding recruitment meetings at

mutually agreed upon locations in the community (e.g., coffee shop, church, participant's home, or other child-friendly meeting space), and at times convenient to the participant (e.g., evenings, weekends). Lastly, health coaches and recruitment assistants often provided light snacks and/or beverages to help create a welcoming environment. As shown in Table 2, these strategies reinvigorated recruitment and eventually accounted for 66.5% of the 316 enrolled MPACT participants. Of the 316 participants, we excluded 40 who did not meet study criteria at baseline assessment (not Pacific Islander, underage, unable to verify smoking status), were missing consent documentation, or were incorrectly randomized into the wrong arm of the study, resulting in the final analytic sample of 276.

*** INSERT TABLE 2 ABOUT HERE ***

Strategies such as these require one last important ingredient: resources to fund and staff. Community-based recruitment takes a significant amount of time and money along with the flexibility to realign resources in light of changing recruitment barriers and needs.[29] Researchers need to be realistic about the time commitment to recruit, in addition to costs related to travel/mileage to, communication with (phone, text, email), and refreshments for potential participants. Ultimately we believe our flexible and robust resources were necessary components that, combined with the trusted relationships of our health coaches and recruitment assistants, resulted in successful enrollment of Pacific Islanders into this community trials.

As shown in Table 3, the majority (78.9%) were born in the continental US, identified as Samoan (65.6%) or Tongan (34.4%), and had a high school degree (47.5%) or higher (49.7%). Compared to women, men had significantly higher proportions who were Samoan, had high school degree or GED, and were uninsured or had unknown health insurance. As shown in Table 4, the majority of participants smoked between 2-5 or 6-10 cigarettes per day (75.8%), had a low

Fagerstrom Test for Nicotine Dependence (FTND) score (80.1%), and ever tried quitting smoking with the most common methods of quitting on their own (67.1%). Compared to men, women had significantly higher proportions who were lighter smokers, and quit on their own, by prayer, or through help from family or friends.

*** INSERT TABLES 3 & 4 ABOUT HERE ***

DISCUSSION

To our knowledge, this is the first study to report on community-based strategies for recruiting Pacific Islander young adult smokers into a randomized control smoking cessation study. Our community-based health coaches served similarly to traditional community health educators. Ultimately the community-based health coaches successfully recruited one-third of the study's participants. Through our CBPR process, we were able to identify the problem of decreasing recruitments and brainstorm new strategies that led to the successful enrollment of two-thirds of the study participants. This outcome is similar to past studies and underscores the success of active community-based recruitment methods, although they also yield participants with higher education and income compared to non-participants.[28]

We hope the lessons learned from our strategies inform the recruitment plans and study designs of future studies that target relatively smaller, underserved ethnic and racial communities. The MPACT study team's deep understanding of Pacific Islander community networks, and recognition of other Pacific Islander young adults as important assets to increase participant recruitment, were essential to the conduct of this first-ever tailored smoking cessation study. Ultimately, partnerships with trusted community leaders and established community

organizations not only enhanced our recruitment outcomes, but also helped to ensure that all components of the study implementation were culturally appropriate and community driven.

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Table 1. Focus group questions for MPACT logo and recruitment flyer development

Goal	Sample Questions to Participants
Focus group #1: Idea Generation	1. For each of five existing logo designs: a. What do you like about it? b. What do you dislike about it? c. What would make it more appealing? d. What would make it more powerful? 2. We are going to develop a program to help young adult Pacific Islanders between the ages of 18 and 30 quit smoking. What do you think would be a unique selling point of the program? 3. Describe characteristics of Pacific Islander young adults. 4. What type of tone (e.g., funny, serious, etc.) would make the program effective? 5. How do you define success? 6. Write two to three adjectives that describe the traits or personality that the logo should communicate. What image do you associate with your word? 7. What images are obvious to you that mean "stop smoking"? 8. What makes you happy (e.g., shopping, eating at a particular restaurant)?
Focus group #2: Logo Development	For each of three new logo designs: 1. When looking at the logo is it clear and legible? 2. Do they express a positive message? 3. Are they distinct for Pacific Islander young adults? 4. Do they convey stop smoking, end nicotine dependence? 5. Do you like it? Why or why not? 6. Is there anything you would change about it?
Focus group #3: Logo Refinement	For each of three revised logo designs: 1. When looking at the logo is it clear and legible? 2. Do they express a positive message? 3. Are they distinct for Pacific Islander young adult? 4. Do they convey stop smoking, end nicotine dependence? 5. Do you like it? Why or why not? 6. Is there anything you would change about it?

Image 1. Screenshot from MPACT recruitment video

Are you a Young Adult Pacific Islander Who Wants to Quit Smoking?

Table 2. Participant enrollment by recruitment strategy and partner type

Partner type	Health Coaches	Recruitment Assistants	Total
Academic	50 (39.4%)	77 (60.6%)	127
Community	56 (29.6%)	133 (70.4%)	189
Total	106 (33.5%)	210 (66.5%)	316

Table 3. Participant characteristics (n=276)

	Overall n (%)	Men n (%)	Women n (%)	p value
Age in years (mean, sd)	25.3 (3.6)	24.8 (3.9)	25.7 (3.3)	0.04
Birthplace				
United States-Continental	217 (78.9%)	111 (40.4%)	106 (38.6%)	0.42
United States-Hawai'i	10 (3.6%)	5 (1.8%)	5 (1.8%)	
American Samoa	15 (5.5%)	10 (3.6%)	5 (1.8%)	
Samoa	13 (4.7%)	5 (1.8%)	8 (2.9%)	
Tonga	13 (4.7%)	4 (1.5%)	9 (3.3%)	
Guam	1 (0.4%)	0 (0.0%)	1 (0.4%)	
Other	6 (2.2%)	2 (0.7%)	4 (1.5%)	
Ethnic Identification				
Samoan	181 (65.6%)	93 (33.7%)	88 (31.9%)	0.53
Tongan	95 (34.4%)	45 (16.3%)	50 (18.1%)	
Education				
Less than high school	7 (2.6%)	4 (1.5%)	3 (1.1%)	0.19
High school or GED	130 (47.5%)	73 (26.6%)	57 (20.8%)	
Some college/trade school	98 (35.8%)	40 (14.6%)	58 (21.2%)	
2-year college (AA/AS)	23 (8.4%)	10 (3.7%)	13 (4.7%)	
4-year college (BA/BS)	15 (5.5%)	9 (3.3%)	6 (2.2%)	
Graduate degree (Master's, PhD, MD, JD)	1 (0.4%)	1 (0.4%)	0 (0.0%)	
Employment Status				
Employed	157 (59.3%)	74 (27.9%)	83 (31.3%)	0.54
Unemployed	108 (40.8%)	55 (20.8%)	53 (20.0%)	
Medical Insurance Status				
Public	44 (17.6%)	17 (6.8%)	27 (10.8%)	0.00
Private	100 (40.0%)	42 (16.8%)	58 (23.2%)	
None	85 (34.0%)	48 (19.2%)	37 (14.8%)	
Unknown insurance	21 (8.4%)	17 (6.8%)	4 (1.6%)	

p values were retrieved from either t-test, Chi-square, or Fisher exact tests.

Table 4. Tobacco use and past quit attempts (n=276)

	Overall n (%)	Men n (%)	Women n (%)	p value
Number of cigarettes* smoked per day in past month				
< 1	4 (1.5%)	4 (1.5%)	0 (0.0%)	0.00
1	4 (1.5%)	2 (0.7%)	2 (0.7%)	
2-5	112 (40.6%)	39 (14.1%)	73 (26.5%)	
6-10	97 (35.1%)	55 (19.9%)	42 (15.2%)	
11-20	42 (15.2%)	25 (9.1%)	17 (6.2%)	
> 20	17 (6.2%)	13 (4.7%)	4 (1.5%)	
FTND score of nicotine dependence				
Low (<6)	221 (80.1%)	103 (37.3%)	118 (42.8%)	0.02
High (≥6)	55 (19.9%)	35 (12.7%)	20 (7.3%)	
Ever tried quitting, even just for one day				
Yes	232 (85.6%)	114 (42.1%)	118 (43.5%)	0.80
No	39 (14.4%)	20 (7.4%)	19 (7.0%)	
If ever tried, how many times tried to quit?				
Never	34 (12.6%)	19 (7.0%)	15 (5.6%)	0.42
1-2	94 (34.8%)	52 (19.3%)	42 (15.6%)	
3-4	89 (33.0%)	38 (14.1%)	51 (18.9%)	
5-6	19 (7.0%)	8 (3.0%)	11 (4.1%)	
> 6	34 (12.6%)	17 (6.3%)	17 (6.3%)	
Quit methods used in past 12 months				
1. Quitting on my own	177 (67.1%)	79 (29.9%)	98 (37.1%)	0.02
2. Decreasing no. of cigarettes over time	57 (21.6%)	22 (8.3%)	35 (13.3%)	0.06
3. Did not try to quit in the past 12 months	47 (17.8%)	29 (11.0%)	18 (6.8%)	0.07
4. Prayer	44 (16.7%)	16 (6.1%)	28 (10.6%)	0.05
5. Got help from family or friends	29 (11.0%)	15 (5.7%)	14 (5.3%)	0.81
6. Gum	28 (10.6%)	14 (5.3%)	14 (5.3%)	0.97
7. Relaxation techniques	16 (6.1%)	3 (1.1%)	13 (4.9%)	0.01
8. Patch	8 (3.0%)	4 (1.5%)	4 (1.5%)	0.98
9. Another quit smoking program	3 (1.1%)	1 (0.4%)	2 (0.8%)	0.57
10. Oral medications**	2 (0.8%)	1 (0.4%)	1 (0.4%)	0.99
11. Telephone help/quit line	2 (0.8%)	1 (0.4%)	1 (0.4%)	0.99
12. Other	25 9.5%)	15 (5.7%)	10 (3.8%)	0.28

p values were retrieved from either Chi-square or Fisher exact tests.
*Cigarette brands/types include menthol & light cigarettes
**Oral medications include Zyban, Chantix, etc.