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Authors

Tanjasiri, Sora Park
Wiersma, Lenny
Briand, Greta
[et al.](#)

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Balancing Community and University Aims in Community-Based Participatory Research: A Pacific Islander Youth Study

Sora Park Tanjasiri, DrPH¹, Lenny Wiersma, DPE¹, Greta Briand², Vaka Faletau², Jonathan Lepule³, Lianne Nacpil⁴, and Jan Eichenauer¹

(1) California State University, Fullerton

(2) Pacific Islander Health Partnership

(3) Union of Pan Asian Communities

(4) St. Joseph Hospital, Center for Cancer Prevention and Treatment

Abstract

Background—Community-based participatory research (CBPR) holds the promise of improving the planning, conduct, and long-term translation of research findings into community settings.

Objectives—This 2-year, exploratory study applied CBPR structures and processes to the identification of individual, cultural and community factors associated with obesity among Pacific Islander (PI) youth in Southern California.

Methods—We describe the CBPR principles and strategies used by a community–university partnership to develop, implement, and report on the findings from assessments of obesity, physical activity, and nutritional intake among PI youth.

Results—Although CBPR planning processes led to successes in community-based youth recruitment and retention, we learned key lessons regarding implementation of tailored assessment protocols, often involving problems arising from the university side of the CBPR collaborative.

Conclusion—CBPR has its strengths and limits; more studies are needed that report on processes to increase our understanding of how to balance research rigor with community sustainability.

Keywords

Community-based participatory research; primary prevention community health research

Community-based participatory research (CBPR) is increasingly recognized as vital to the development of community-relevant research questions, and the design and conduct of studies that can translate clinical findings into sustainable programs and practices.¹ Few studies, however, have documented the potential and real benefits of CBPR to translational research, to increase what Badger² has summarized as the reflexive (i.e., how reciprocal co-learning affects research), critical (e.g., changing research intentions and actions to address emerging community issues), and face (e.g., whether research findings fit community reality) validity of studies. Exploring such validity is critical to understanding how CBPR can best facilitate translational research that addresses the many enduring health disparities facing diverse communities.

Pacific Islanders (PIs) are Micronesians, Melanesians, and Polynesians from the Pacific who face enormous health disparities, including obesity and related chronic diseases.^{3–5} For instance, available data from across the Pacific point to alarmingly high rates of obesity among PI youth: 41% in Australia⁶; 36% of boys and 54% of girls in the Kingdom of

Tonga⁷; and extreme obesity (defined as body mass index > 99th percentile) among 11% in New Zealand.⁸ In California, two studies have documented obesity among 20% of PI youth (ages 10, 12, and 14),⁹ and 22% for Native Hawaiians, 17% for Guamanians, 49% for Samoans, 28% for Tahitians, and 31% for other PIs.¹⁰ Unfortunately, PI health needs remain virtually invisible to medical providers and policy makers,^{3,11} or addressed via unethical approaches,¹² and thus CBPR holds the potential to engage both PI communities and scientists in the long-term pursuit of culturally appropriate solutions.^{13,14}

Our 2-year, exploratory study applied CBPR to the exploration of the factors contributing to obesity among PI youth in Southern California. We report on the processes that enabled a diverse group of community and university researchers to assess and understand obesity, physical activity, and nutrition among Marshallese, Samoan, and Tongan youth. The remainder of this paper describes our CBPR approach, including development of the study procedures, tailoring of instruments, identification and recruitment of youth participants, and data collection experiences. We share our lessons learned regarding the potentials of CBPR to balance issues regarding scientific rigor of research methods with community relevance for populations facing critical health disparities.

METHODS

Study Overview

This 2-year, cross-sectional study assessed body mass index, physical activity, and dietary intake in a nonprobability, church-based sample of PI youth. The project goals were to (1) test the feasibility of quantitative and qualitative data collection activities among Marshallese, Samoan, and Tongan adolescents; (2) estimate the point prevalence of obesity and physical activity, with a subgoal to explore the distribution of dietary intake in these groups; and (3) explore the predisposing, enabling, and reinforcing factors influencing physical activity in this group. Anthropometric measures included height and weight (using a stadiometer and bench scale) to calculate body mass index (in kilograms divided by height in meters squared) to determine at-risk for being overweight (85th percentile for age and gender) or obese (95th percentile).¹⁵ Physical activity was assessed using uniaxial accelerometers (a small device worn on the trunk that collects detailed information on the duration, frequency, and intensity of physical activity) with a minimum of 4 valid days of data (defined as 30 consecutive minutes of activity counts in each hour, and 8 valid hours in each day) to determine daily duration (min/d) of sedentary (activity count < 101), light (101–1,952), moderate (1,953–5,724), and vigorous intensity (5,725–10,000) activity categories.^{16,17} Dietary assessment relied on a 150-item Food Frequency Questionnaire (FFQ) that was developed and validated by the Epidemiology Program of the Hawai'i Cancer Research Center at the University of Hawai'i for PI and other populations.^{18,19} A preexisting survey instrument assessed the predisposing and reinforcing factors influencing adolescent physical activity (which has been shown to have good internal consistency reliability in ethnically diverse youth),^{20–23} and focus groups were conducted to understand the psychosocial, cultural, and environmental influences on dietary intake and physical activity.

Youth were recruited to participate in two assessment visits. At the first visit, written parental consent and youth assent were obtained, and participants were measured for height and weight, completed the FFQ, and were provided an accelerometer with instructions on its wear for the succeeding 7 days. At the second visit, approximately 7 days after the initial visit, participants returned their accelerometers and answered the self-reported physical activity questionnaire (after receiving detailed instructions on how to fill in the forms, which were also monitored by staff for completeness by each youth). Last, a subsample of participants was contacted approximately 6 months later to participate in a third visit

composed of focus group discussions. Participants completing the first (100%), second (88%), and third (28.6%) visits received gift cards after each visit as a thank you for their time and effort. A lengthier description of the assessment methods and results of this study appears in a previous publication.²⁴

Study Population and Sample—According to the 2000 Census, 874,414 PIs live in the United States (alone or in combination with one or more other races), and California is second only to Hawai'i in the number of PI residents.²⁵ Southern California is home to over 110,000 PIs, a large proportion who are children ages 0 to 17 years of age (34%), and have high rates of poverty (15%), less than high school educational attainment (20%), and live in crowded housing (28%).²⁶ Southern Californian PIs also live dispersed across primarily low-income, urban cities (that face enormous problems with crime, unemployment, and lack of social services), but comprise small proportions of the city residents (e.g., in Carson only 3.8% are PI, and in Long Beach only 1.7% are PI).²⁶ For those who work with PI communities, such geographic dispersion presents many outreach, education, advocacy, and research challenges, and underscores the need for community-informed approaches. The PI sample for this study included 129 youth aged 13.0 to 24.0 years old (mean, 16.2) who were Tongan (47.6%), Samoan (30.2%), and Marshallese (22.2%). Over half were male (53.2%), and having a high school diploma was reported as the highest level of education for 64% of fathers and 66.1% of mothers.

CBPR Approach—We applied the CBPR principle of equal partnership between community and university researchers before the conceptualization of this study. The study collaborative included a Marshallese health educator, a Tongan social service provider, and a Samoan health educator from two community-based organizations who had extensive experience in outreach, education, and advocacy with the Marshallese, Samoan, and Tongan communities of Los Angeles, Orange, and San Diego counties. In Los Angeles and Orange counties alone, the community leaders had ties to 49 PI churches. The university researchers included a behavioral and CBPR scientist, a youth sport and physical activity specialist, a nutritional epidemiologist, and a public health researcher with experience in physical activity measurement among PI adults. Before the grant proposal was conceived, obesity had already been identified as a key priority research area by all of the community and university study partners through their involvement in the 2005 to 2010 NCI Community Network Program, WINCART: Weaving an Islander Network for Cancer Awareness, Research and Training,²⁷ which had the goal of promoting community-based education, research and training for PIs in Southern California. When the National Institutes of Health released an R21 funding announcement in 2006, WINCART community and university partners brainstormed possible research studies. Conducting a feasibility-oriented needs assessment of obesity among PI youth was unanimously identified as an important effort that could build upon the needs and assets already existing in the communities.

We operationalized the remaining CBPR principles through study structures and processes to promote both community appropriateness and relevance of research efforts, and improved tailoring of research measures and methods. With regard to building on and supporting community strengths, the study budget (totaling \$275,000 over 2 years) included significant subcontracts to the partnering community organizations (representing 22% of the overall budget) to support involvement of PI adult community leaders and PI youth assistants throughout the project. To facilitate equitable involvement of all partners in all phases of research, quarterly meetings were held (in addition to weekly phone calls and e-mail communications) with all study team members to tailor and finalize instruments, develop assessment protocols, develop publicity and recruitment materials, monitor youth recruitment and data collection activities (which were spearheaded by the community staff), monitor progress of data entry and management (which was conducted by university staff),

and plan for the dissemination of study findings to each community. Although the partners participated in every aspect of the study planning and implementation, community partners were leads on all cultural tailoring, community publicity, and youth recruitment activities, and university partners were leads on finalizing instruments, data management, and statistical analyses. All community and university partners passed an online institutional review board tutorial, and all data collection instruments and protocols were reviewed and approved by the university institutional review board for appropriate human consent processes (which include both parental consent and youth assent forms) before data collection; photo consent forms were also obtained for all images in this and other study materials. The extent to which our CBPR structures and processes were able to maximize community relevance of research activities, along with ensuring scientific rigor of research methods, is described in the remainder of this paper.

RESULTS

The first 6 months of the study were spent finalizing all plans for youth recruitment, study measurement, and long-term community engagement. We hoped that, through intensive CBPR dialogue about each of these sets of activities, we could identify all potential challenges and prepare contingencies plans for all study team members. What we learned in implementation, however, was that although CBPR helped sensitize us to the potential challenges of working collaboratively, we could not foresee or prevent many of the outcomes of our recruitment, assessment, and engagement activities. Ultimately, our close community–university collaboration enabled us to make adjustments throughout the study period, with varying results in processes and outcomes. Table 1 summarizes what we learned.

What We Learned During Participant Recruitment

Our original plan for youth recruitment involved approaching ministers for approval to recruit from their congregations, totaling 49 churches among the three PI communities. Churches were selected such that a diversity of denominations (e.g., Methodist, LDS, Catholic) and geographic locations (in both Los Angeles and Orange counties) would be represented. Once approval was obtained from church ministers, the community-based staff usually attended Sunday services, announced the opportunity to participate in the study, and held meetings with interested youth to describe the project, assessment activities, and requirements. Meetings were also held with parents, who often were waiting at the church for the youth ministries to conclude, to inform them of the importance of the study toward promoting the future health of PI youth.

The original recruitment period of 3 months took twice as long as planned, owing to the intensive investments made by community-based staff to inform all levels of their communities about the study. A total of 13 PI churches (3 Marshallese, 5 Samoan, and 5 Tongan) were approached by community staff for recruitment of PI parents and youth, and ministers from each gave approval for the study. The staff then spent considerable energy visiting and informing church members about the study. For instance, staff visited a Tongan church on three separate evenings to meet the ministers, parents, and youth to explain the study purpose and processes. During subsequent study efforts, challenges arose that required the community staff to provide support in a myriad of ways. In the Marshallese community, for instance, transportation was a common barrier to youth participation, and the community staff picked up most of the youth to take them to and from the assessment site. In the Samoan community, a funeral unexpectedly changed the availability of one of the church assessment sites, and the community leader quickly arranged at the last minute to conduct the assessment outside a local market owned by a relative (Figure 1). Efforts from research team members with significant community ties provided flexibility that was likely not

possible for university researchers alone. Because of the commitments of community staff, study recruitment rates were high: 65% of youth agreed to participate (40% for Marshallese, 63% for Samoan, and 95% for Tongan youth). Retention rates were also high: 100% anthropometric measurements and 99% FFQs (visit 1), 100% questionnaires and 88% accelerometers containing a minimum of 4 usable days of data (visit 2).

What We Learned About Assessment

Community and university staff carefully informed the development of all assessment protocols and instruments to maximize cultural respect and community relevance. Although anthropometric assessment protocols were well established, we devised ways to ensure that measurements taken in open community spaces maximized confidentiality (e.g., by ensuring that only one staff member could view each youth's scores). More challenging to tailor were protocols for accelerometer distribution and collection. Because accelerometers have no visible "reading" displayed to the wearer, the study team was initially concerned that youth may not understand the importance of regularly wearing the devices. Thus, we provided youth with sample printouts of what the monitors were assessing (during the first visit) and also provided them with their own results in graph form (after the second visit). Even more challenging, however, was the protocol for placement of the devices (ideally fit snugly at the top of the hip). Many youth favored baggy-style pants (Figure 2) and our team could find no literature on how such wear influenced the validity of the measurements. In addition, we were surprised to learn that many youth were accused by adults (e.g., at their schools and workplaces) of being either under house arrest or performing illegal activities (e.g., dealing drugs) because the accelerometers seemed to them to be pagers or probation devices. The community and university staff quickly responded by creating and distributing business cards to all youth with the names of the lead staff to contact if they had any questions about the veracity of the study activities.

More difficult for the team to adapt were preexisting questionnaires on food intake and physical activity attitudes. For the FFQ, most youth had difficulty completing the instrument because they were surprised to learn how small one serving was; it is common for PI youth to serve their elders using soda carton boxes as plates (rather than standard paper plates), and to pile food high as a sign of respect to the elders. For the physical activity attitudinal questionnaire, the community and university staff spent nearly 2 months to tailor questionnaire instructions and question stems to PI youth (such as by referring to water sports and other activities familiar to PIs as examples of activities). Similar to the FFQ, however, youth struggled with completing the survey because they were unfamiliar with the layout and format of such a questionnaire. Resulting alpha reliabilities for all but one of the questionnaire subscales fell well below the acceptable coefficient of .60,²⁸ ranging from .08 for perceived physical competence to .72 for parental encouragement. Thus, the efforts to tailor these questionnaires for cultural relevancy were not as adequate as if the questionnaires were originally designed with PI cultural norms and values in mind.

What We Learned about Community Sustainability

Last, community and university staff attempted to promote long-term sustainability throughout the study activities. For instance, 4 PI youth (2 Marshallese, 1 Samoan, and 1 Tongan) were recruited from each community and trained to assist with instrument and protocol tailoring, data collection, and community report-backs. We hoped that these youth would be motivated to pursue a college degree, and thus far one youth has pursued such an interest. In addition, the study team coordinated a large community report-back session to over 80 parents, youth participants, community leaders and researchers regarding the preliminary results and implications. For the university staff, it was an opportunity to "validate" the findings with participant perspectives, and learn from them what they thought

of the various methods and activities. For instance, 2 youth shared that they enjoyed participating in the study because of the opportunity to learn about health and appreciated the financial benefits from the study incentives. For the community staff, it was the necessary step to fulfilling the promise of using research to improve community health; for instance, one staff believes it was their own “Biggest Loser” opportunity (a reference to the popular reality TV show) to work against the image that bigger is more healthy and prestigious among PIs. Despite these many successful sustainability activities, the biggest obstacle to longer term program impacts may be the extensive time needed to develop and obtain competitive grant funding for future obesity prevention interventions.

DISCUSSION

This study applied CBPR structures and approaches to the collection of objective measures of obesity, physical activity, and dietary intake for PI youth in Southern California. Given the many community and contextual barriers to assessing urban ethnic minority youth, we turned to CBPR to define, tailor, implement, and evaluate all study activities. As a team, we continually sought opportunities to reflect on what Badger² described as the “critical validity” of how such changes reflect our original study intentions, as well as on the “dialectic validity” of how tensions and complexities can be understood through the consideration of the study's theory, research and practice. In the end, important gains were achieved. For the university staff, such intensive assessments could not have been conducted without the invaluable insights and connections of community-based staff to outreach and educate their communities, recruit and retain youth, and problem-solve challenges throughout the study period. For the community leaders, CBPR was the vehicle to ensure that the study did not reflect “helicopter research” (the collection of data by academics who then leave, without lasting benefits to the participants or community). Community leaders also believe that collaborating with universities promoted a positive image of higher education for their youth, hopefully resulting in increases in high school and college graduation rates.

Despite the many benefits we gained through CBPR, we raise cautions regarding the limits of such approaches. The challenges we faced with accelerometer and questionnaire data collection raise questions as to whether “standardized” measures fit the realities of such youth. We also caution that there were many non-CBPR limitations that may have biased our research experience and findings. For instance, the relatively small sample size of the youth (and their recruitment from only 13 church-based sites) means that the processes and outcomes of this study may not be generalizable to larger PI populations, although care was taken by the study team to select PI churches that represented the diversity of denominations for this feasibility study. A future intervention project plans to build on this church-based sampling approach to the more than 49 churches to which our community leaders have ties. “Course corrections” that we made in protocols throughout the study period may have also biased our data and results in unknown ways. With these limitations in mind, we hope that future CBPR and other researchers will learn from our successes and challenges in the pursuit of studies that meet both scientific aims and longer term community needs and aspirations. We firmly believe that any kind of public health research cannot and should not take place in a vacuum. The translation of scientific discoveries to community practice necessitates community and university partnerships that bridge the cultural and organizational divides, educates and trains all partners in the skills required for culturally competent methods and measures, and ultimately builds trusted and lasting relationships that can be harnessed for positive community change.

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Figure 1.
Community-Based Youth Assessment



Figure 2.
Challenge of Accelerometer Assessment

Table 1

Summary of Lessons Learned Regarding Strengths and Ongoing Challenges of CBPR

Study Phases	Strengths	Challenges
Participant Recruitment	<p>Significant ties to PI churches</p> <p>Outreach education to PI parents and youth about the study</p> <p>Flexibility in responding to changing community needs and assessment sites</p> <p>Recruitment and retention of PI youth in all phases of the study</p>	<p>Length of time took twice as long as planned</p>
Youth Assessment	<p>Development of culturally tailored data collection protocols</p> <p>Ability to understand and address unforeseen challenges (e.g., accelerometers perceived as probation devices)</p>	<p>Inability to culturally tailor FFQ and physical activity attitude items</p> <p>Balancing cultural practices with current research protocols</p>
Community Sustainability	<p>Opportunity to involve PI youth as study team members, thereby promoting future educational advancement</p> <p>Ability to provide data back to community youth, parents, and leaders, to confirm study results and plan future intervention activities</p>	<p>Extensive time needed to develop and obtain competitive grant funding for future obesity prevention interventions</p> <p>Length of time between data collection and analysis over multiple cohorts makes data report-back less effective</p>

Note. FFQ, Food Frequency Questionnaire; PI, Pacific Islander.