

Diabetes Bingo: Research Prioritization with the Filipino Community

Anne R. Leake PhD, APRN-Rx, FNP; Tessie Oculito RN; Emilyn Ramones RN, BSN; and Cedric R. Caagbay RN, MS

Abstract

This community-based participatory research, conducted in partnership between a European-American academic researcher and a professional group of Filipino nurses, aimed to determine the diabetes research priority for the Filipino community on the island of O'ahu in Hawai'i, and to evaluate the multi-voting technique to seek input from the community. The study design was a qualitative, cross-sectional interactive process consisting of an educational presentation followed by data collection from the audience. Ten community presentations about the impact of diabetes on the Filipino community were conducted by a Filipino nurse with participants (N=265). Following the educational session, the participants selected priorities for research using a multi-vote technique developed as a Diabetes Bingo card. Community voting results identified prevention and a focus on adults as important priorities for research. Based on the results of the multi-voting, the research partners were able to come to consensus on a research priority area of prevention of type 2 diabetes in adults. Multi-voting using a Diabetes Bingo card, preceded by an educational presentation by a Filipino nurse, was a culturally competent community-based participatory research method that gave voice to the participants and direction to the research partners for future projects. The multi-voting technique was readily accepted and enjoyed by participants.

Introduction

Community-based participatory research (CBPR) aims to involve community members in examining problems that are of high priority and then developing solutions that fit their own particular situations. Positive effects of using CBPR approaches on research quality and participation rates have been reported.^{1,2} CBPR is normally conducted by partnerships between academic researchers and representatives of subpopulations experiencing disparities in health, income, education, housing, and other critical life domains. Typically, academic researchers come from cultural and/or socioeconomic backgrounds that differ from their community partners, making it imperative that they take special care to use culturally sensitive approaches and methods in order to gain an accurate view of community concerns and capacities and to maximize mutual understanding.

Filipinos in the United States are characterized by a variety of health disparities. Epidemiological studies of various Filipino subpopulations indicate exceptionally high prevalence rates of Type 2 diabetes (T2D) ranging from 10% to 33%, all above the national average.³⁻⁶ The problem of T2D for Filipinos is particularly evident in Hawaii because Filipinos comprise about 19% of the state's population of about 1.2 million, a much higher proportion than for any other state.⁷ The study reported here was conducted on the most populous island, O'ahu (with about three-quarters of the state's population), where the proportion of Filipinos is 22%. There is a high immigration rate from the Philippines of about 4,000 people per year⁸ and about 47% of Filipinos in Hawai'i are foreign-born.⁹ Filipinos in Hawai'i have a diabetes prevalence rate of 10%, surpassed only by Native Hawaiians at 13%.⁵ Not surprisingly, Filipinos also experience among the state's highest prevalence rates of various diabetes-related health conditions, including cardiovascular disease¹⁰ and metabolic syndrome.⁶

This article describes how a partnership between a European-American academic researcher and a Filipino nurses' organization successfully used CBPR to identify priorities for diabetes research within the Filipino community on O'ahu. A further objective was to evaluate the use of multi-voting as a technique to engage community participants to choose health-related research priorities from a large number of options.

Methods

CBPR Approach

A CBPR approach was used to facilitate a partnership between the academic researcher and the Philippine Nurses Association of Hawai'i (PNAH) as the foundation for current and future research.^{11,12} The academic researcher recognized diabetes as a critical health problem for Filipinos as the result of practice as a nurse practitioner at a community health center in a neighborhood of urban Honolulu with a high proportion of Filipinos, including many recent immigrants. While a doctoral student in 2001 the academic researcher was appointed as an advisor to PNAH. She conducted a preliminary study on how to approach the Filipino community as a partner in diabetes research. As part of that study, she conducted key informant interviews with Filipino-American health professionals, including the president of the Oahu Filipino Community Council. As a result, she was invited to make a presentation to the Board of this Council, which recommended PNAH as the best potential partner for CBPR in the area of diabetes.¹³ Diabetes had become a priority for the PNAH because many of its members were practicing in dialysis and rehabilitation centers and witnessing the impact of diabetes every day, and wanting to improve outcomes. This collaborative partnership developed the current study and planned for implementation. The partners agreed that: (1) results would be used as the basis for subsequent CBPR applications addressing priority areas identified by the community, and (2) all submissions for publication and presentation would be conducted in partnership.

Study Design

The academic researcher and the PNAH collaboratively developed the study design as a qualitative, cross-sectional interactive process consisting of an educational presentation followed by data collection from the audience. An interactive face-to-face educational session was selected as the best way to clarify complex information. Community members needed to complete a survey about priorities for diabetes research using a multi-voting technique. This data collection method was selected over a group consensus discussion to ensure that each individual had a voice in the prioritization process. The PNAH knew that the time available with intended audiences would typically be limited, so all activities were designed to be completed within 45 minutes. The study procedure was piloted with nursing graduates from the Philippines attending an NCLEX (nursing licensing exam) review class, and on this basis the design was modified to include less factual information in the educational presentation and more instruction for completing the multi-voting survey form.

Educational Presentation

The academic researcher developed the educational presentation in collaboration with a PNAH study advisory group for content and with the Filipino project coordinator for visual appeal, presentation style, and impact for Filipino audiences. The content included individual risk factors for developing diabetes across the life span and points where interventions could be made. Topic areas were childhood obesity, gestational diabetes, metabolic syndrome, impaired glucose tolerance, early diagnosis of diabetes, prevention of complications, and the impact of diabetes on the Filipino community. Also described were aspects of diabetes that could be studied in this community i.e., risk factors, obesity, pre-diabetes, diabetes control, and diabetes complications.

Multi-voting Technique

Qualitative approaches often used in research when there are many options for a large group to consider include the nominal group technique (NGT),¹⁴ the Delphi technique,¹⁵ and multi-voting.¹⁶ These techniques ensure each voice is heard, either openly or confidentially, and avoid “group-think” where one dominant or influential person can sway the group. The nominal group process assumes that participants have at least some personal experience with the topic under consideration, and the Delphi technique is often used when the participants are experts.

The multi-voting technique has been shown to be effective when multiple different groups are trying to select the most important choice from a large number of options.¹⁶ Multi-voting requires participants to select one-third of the total number of options without requiring a forced ranking, with one or more priorities usually emerging. Multi-voting was chosen because it is an efficient use of participants’ time and would allow the PNAH to use the results in a subsequent consensus process. As a decision making method, multi-voting is less demanding on participants compared to forced rank ordering or Likert scales.¹⁷ We did not expect the community participants to be diabetes experts, even after the educational session, so the multi-vote technique was identified as more appropriate than the other approaches. In addition, community participants can easily grasp the results because knowledge of statistical concepts is not required.

Sample

The partnership was able to involve a substantial number of community members in the CBPR process through its connections with Filipino community organizations. O’ahu has over 200 such organizations, primarily social, business and civic clubs providing networking and social support. The PNAH members recommended organizations to participate based upon their perceived receptivity, interest in the topic, and potential for participation in this and future research. The sites chosen were community centers (N=3) and churches (N=3) that provide space for Filipino groups to conduct meetings and events in the Kalihi and Lanakila neighborhoods of Honolulu and the towns of Aiea and Waipahu.

Presentations were made at two nursing licensure review classes, four seniors groups, two care home operators groups, and a Valentine’s Day parish luncheon. These groups were selected to include a range of ages and gender in the sample, with more young adults in the nursing licensure review class, more middle aged participants in

the care home operators group, and more retirees and elderly in the church groups and social clubs. All adults (age 18 or greater) in attendance were included. Lack of English proficiency was not an exclusionary criterion because bilingual PNAH members were available to interpret as needed, nor was being of non-Filipino heritage because all non-Filipino attendees were friends or family of Filipinos with first-hand experience of Filipino culture. In keeping with PNAH membership demographics, most participants were middle-aged and elderly, born in the Philippines, and with English proficiency sufficient to understand the diabetes presentation and the multi-voting procedure. Audience sizes ranged from 12 to 46 people. A total of 265 individuals participated compared to the target of 300.

Protection of Human Subjects

Approval for the study was obtained from the Committee on Human Subjects at the University of Hawai’i, Manoa. Prior to the start of each presentation, the Project Coordinator explained the study and read the informed consent to participants. According to our protocol a signed consent was waived because returning the study survey was deemed to indicate consent to participate in the study. However, a written copy of the informed consent was provided to those who chose to participate. No identifying information was requested on the survey. Participants placed their completed surveys in a sealed box to further insure privacy.

Diabetes Bingo Card

The partnership put special thought into the design of the multi-voting survey form to make it appealing and engaging for participants, based on the idea of fun or fiesta as a Filipino value. Social marketers have successfully based marketing campaigns on this value,¹⁸ and health education “parties” have proven successful in encouraging Filipino women in Hawai’i to get screened for breast and cervical cancer.¹⁹ Most Filipinos are familiar with Bingo and know it as a fun activity, so the survey form was developed as a grid with the title “Diabetes Bingo” (see Table 1, which shows the total number of responses by participants for each of the possible choices).

The ordering of the 12 research topics (displayed in the far left column in Table 1) was conceived by the academic researcher and reflects the typical natural progression of T2D which begins with obesity, followed by insulin resistance, then diabetes and complications. The ordering of the foci within each topic reflects the concepts of primary, secondary and tertiary prevention. Asking participants to choose among children, adults and elderly is another way to draw out cultural values, and also gives direction as to which age groups should be given priority when seeking funding for future research.

Procedures

All presentations were conducted in English by the project coordinator, a Filipino-American nurse. He was accompanied by the PNAH member who had recommended that particular group and gained its participation. The PNAH member would introduce the project coordinator, facilitate question-and-answer periods, and translate when needed. The presentation by the project coordinator included 21 PowerPoint slides and lasted about 20 minutes, followed by 10 minutes of questions and answers. This standardized

Table 1.— Participants' (N = 265) selection of priorities for diabetes related research in the Filipino community on "Diabetes Bingo" cards (participants were instructed to choose 12 out of 36 possible priorities, generated from 12 problems times three age groups).

Diabetes Bingo			
Problem	Children	Adults	Elderly
Obesity Prevention	174	131	44
Obesity Detection	116	113	36
Obesity Treatment	99	151	51
Impaired Glucose Tolerance Prevention	72	151	57
Impaired Glucose Tolerance Detection	51	152	43
Impaired Glucose Tolerance Treatment	37	131	77
Type 2 Diabetes Prevention	85	169	60
Type 2 Diabetes Detection	61	153	51
Type 2 Diabetes Treatment	29	131	76
Type 2 Diabetes Complications Prevention	68	150	80
Type 2 Diabetes Complications Detection	38	154	70
Type 2 Diabetes Complications Treatment	38	134	95

approach was designed to provide each audience with a similar knowledge base.

The project coordinator opened the presentation by stating the 2 objectives of the presentation: to describe the impact of diabetes for Filipinos in Hawai'i and to prioritize areas for future research. He then asked the audience to look at the Diabetes Bingo card and told them they would be learning about the potential research areas in the left column and the differences between children, adults, and elderly for these research areas. The audiences were presented with values to consider when selecting the population (children, adults or elderly) and focus (prevention, detection, or management) for future diabetes research within the Filipino community. Biasing the voting was avoided by making positive statements about each category of choice, e.g., If you believe the children are our future, you might want to select topics on diabetes research with children. If you think that preventing problems is better than treating problems, you would want to select research related to prevention. If you feel it is most important to help Filipinos who already have diabetes to stay as healthy as possible, then you would choose research topics related to complications of diabetes.

The presentation had three parts: the research process, the disease process that included a question and answer period, and the decision making process. The research process segment described the importance of including the community in deciding what to study, who to study, and how to study and tied this to the Diabetes Bingo card's columns (progression of diabetes and populations by age) and rows (level of prevention). The disease process segment explained the differences between type 1 and 2 diabetes, the symptoms of each, risk factors for T2D, and the progression of the disease and a question and answer period. In the decision making process segment, the project coordinator presented statistics about diabetes in Hawaii and its impact on the Filipino community, and explained how to complete the Diabetes Bingo card.

Question and Answer Period

Most questions sought advice about how to live healthier (e.g., how much to exercise a week, how high should the heart rate go while exercising). Many wanted to share their personal stories of family members living with diabetes. Some asked why Filipinos were developing diabetes more than other races. The project coordinator answered these questions as simply as possible with general recommendations.

Completion of Diabetes Bingo Cards

After the question and answer period, the audience was guided to complete the survey by marking X's in the 12 boxes they considered to be of highest priority out of the 36. Examination of the cards showed that some respondents marked fewer or more than 12 boxes (some who made more than 12 selections explained they felt all the areas were important and did not want to leave anything out). However, PNAH members advised against handing back cards to be properly completed as such a public procedure would likely offend the *amor proprio* (feeling of self-worth) of those participants.

Data Analysis

At the completion of each educational session, the Diabetes Bingo card votes were tabulated by the academic researcher. The results were not shared with other members of the research team to avoid biasing the continuing data collection.

Results

The presentations to 10 different groups yielded a total of 265 completed Diabetes Bingo cards. The gender breakdown of participants was 19% men and 79% women with 2% non-responders to the gender item. Age of respondents was 16% young adult (age 18 to 35 y.o.), 39% middle aged (36 to 64 y.o.), and 37% seniors (65 y.o. and above) with 8% non-responders to the age item. The majority of respondents (53%) were born in the Philippines, reflective of statewide demographics, and 23% were born in Hawai'i.

The multi-voting tally is displayed in Table 1. With each respondent selecting 12 boxes on their Diabetes Bingo card, there would be 3180 votes total. The majority (72%) of respondents complied with the multi-vote instructions and marked precisely 12 boxes. In total there were 3328 boxes marked, with 40 (15%) respondents choosing more than 12 boxes while 35 (13%) marked fewer than 12 boxes. All votes were counted in the tally. The research priorities receiving the most votes were prevention of obesity in children (174 votes) and preventing T2D in adults (169 votes). The elderly received the fewest votes as a population of interest for diabetes research (740 out of 3328 votes), with no single research area for this population receiving more than 100 votes. Children as a population of interest also received fewer votes than adults (868 out of 3328 votes), with 389 of their 868 votes (45%) cast in the problem area of obesity.

Consensus Process

To meet the objective of identifying priorities within the Filipino community for diabetes research, a consensus process was conducted to analyze the multi-voting results at a general PNAH membership meeting with 25 members attending. The members were provided with copies of Figure 1, and several remarked that this way of summarizing the results was easy to comprehend. The preponderance of votes for prevention and for research with adults caused the group to quickly focus the discussion toward these priority areas. Consensus was reached after about 30 minutes of discussion to select the research priority of prevention of T2D in adults, with the additional recommendation that interventions to be tested include a family focus that would also help to prevent obesity in the children of participating adults.

Discussion

The high number of votes for the focus area of prevention, and the outcome of the consensus process, are in keeping with Filipino health beliefs of balance and moderation, with imbalances believed to be caused by personal irresponsibility.²⁰⁻²² It is possible that the role of working-age adults as breadwinners leads to a higher valuation of disease prevention for this age group. In Hawai'i, the proportion of Filipinos holding more than one job is higher than the state average, and their median income is higher than other ethnic groups, reflecting the drive for economic prosperity that characterizes this community.²³ Interventions for diabetes prevention with adults, and future research in this area, would need to be held at places and times convenient for Filipino-Americans in the workforce.

The Academic-Community Health Partnership

The CBPR partnership process between the academic researcher and the Filipino nursing organization is a model that could be used with other communities with large Filipino populations. The Philippine Nurses Association of America (www.philippinenursesaa.org) is an international organization with 35 chapters across the United States. Included in their mission is the goal to "contribute to significant outcomes to health care and society" and this mission is aligned with the principles of CBPR. The external validity of this descriptive study can be rated for reach, representativeness and implementation.²⁴ Adequate reach was reflected in the age distribution and percentage of foreign-born participants similar to census data for the community of Filipino adults on O'ahu. Bringing the diabetes

presentation to community groups, rather than inviting groups to a potentially less convenient special event, also extended the reach of this study. Representativeness is illustrated by the variety of groups who heard the presentation. Implementation was consistent across all sites, with the same person, a Masters prepared nurse with excellent speaking skills, making all of the educational presentations.

The sample of participants consisted of people who are active in Filipino groups, and would perhaps be more likely to participate in research studies than other Filipinos. This community-based approach of using social networks to inform community groups about an issue, and then asking for group members' opinions, provided a network of potential participants in future research who were directly involved in setting the research priority.

Multi-voting Technique with a CBPR Approach

The multi-voting technique fit well with the CBPR approach since it proved to be an efficient way to derive the overall priorities of a large number of community participants. Although a formal evaluation of participant use and acceptance of the Diabetes Bingo card was not done, all comments by participants were uniformly positive.

The technique's advantages include:

- multi-voting can be conducted in a way that seems like fun rather than work for participants;
- participants are readily able to understand the process and its outcomes; and
- participant confidentiality is protected since there is no need to collect names or other personally identifiable information.

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Conflicts Of Interest

The authors have no relationships that could be viewed as a conflict of interest.

Authors' Affiliation:

- School of Nursing and Dental Hygiene, University of Hawaii at Manoa, Honolulu, HI (A.R.L.)
- Philippine Nurses Association of Hawai'i, Honolulu, HI (T.O., E.R.)
- University Health Group, Honolulu, HI (C.R.C.)

Correspondence to:

Anne R. Leake PhD, APRN-Rx, FNP
School of Nursing and Dental Hygiene
University of Hawai'i at Manoa
2528 McCarthy Mall, Webster 436
Honolulu, HI 96822
Ph: (808) 956-0987
Fax: (808) 956-3257
Email: aleake@hawaii.edu

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