

Development and Implementation of Health Surveys in Asian American Communities: An Example of Research on Smoking Behaviors and Perceived Cancer Risks

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Abstract

The methodological, cultural, and research challenges associated with conducting surveys among community based Asian American (AA) organizations was explored. The cultural content and cultural conflict models were employed. Also discussed are the strategies that were adopted to conduct a comprehensive needs assessment survey of tobacco use and associated cancer risk among an AA population in the Delaware Valley region of Pennsylvania and New Jersey. Research among AA populations pose data collection difficulties. These difficulties include gaining access to membership lists, language barriers, need for one-on-one explanation of survey items, reduced uniformity of conditions, the need to maintain confidentiality, and the need to establish trust with the members of the organization prior to gaining an invitation to conduct the survey and reluctance of AA to give personal information to researchers. Community methods included gaining trust of community leaders, and establishment of an Asian Community Cancer Coalition. A comprehensive questionnaire was translated into four Asian languages. Methods used to develop a reliable and valid survey are presented.

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Introduction

This article examines some of the methodological, cultural, and research issues and challenges associated with conducting community-based survey research in Asian American (AA) communities, and how those issues were identified and addressed in a comprehensive needs assessment survey of tobacco use and associated cancer risk among AA residing in the Delaware Valley region (Philadelphia, Delaware, Bucks, Montgomery, and Chester counties of Pennsylvania; Camden and Burlington counties of South New Jersey). The survey was conducted by the Asian Tobacco Education and Cancer Awareness Research (ATECAR) project of Temple University, Philadelphia, PA. These experiences of coping with the challenges of surveying Asian Americans can provide valuable lessons for

health promotion professionals who serve this growing population.

The cultural content model and the cultural conflict model were the two theoretical models that were used as the basis of developing the needs assessment survey. These models focus on the historical, cultural, and societal dynamics that support a particular health behavior. The cultural content model suggests that a health behavior can be explained by values and norms operating in a cultural group. The cultural conflict model explains health behavior by focusing on problems encountered by a particular group such as oppression, racism, alienation from the mainstream culture, identity conflict, generational conflicts, and a sense of powerlessness (DHHS, 1998).

Surveys can be conducted by telephone, through in-person interviews, or with a self-administered questionnaire. Reliable and valid surveys are used to answer many public health research and policy questions (Kaskuta, Schmidt, Weisner, & Greenfield, 2000). While there are limits to self-report surveys, such as participant veracity in reporting, they are employed because they are economical, enable the collection of a large quantity of data in a relatively short period of time, provide for standardization of data collection, provide for anonymity and allow researchers to identify attributes of a population from a small group of individuals and for descriptive and explanatory purposes (Babbie, 1992, 1990; Fink & Kosecoff, 1998; Fowler, 2001; Sudman & Bradburn, 1986). Today's sampling strategies are sophisticated and can include underrepresented populations, such as AA (Kaskuta et al., 2000). Some populations are not easily accessible and cooperative in order to get a representative sample that can be generalized to the larger population.

A one-time cross-sectional survey can determine knowledge, attitudes, and behaviors of groups or of individuals, and when conducted in a series, can be used to examine trends in health status. The health status of Asian populations is important in public health because of the increase in the number of Asian Americans (AA) in the U.S. Between 1980 and 1990, this population doubled and now represents approximately 4% of the U.S. population. A unique feature of this population is its clustering in certain geographic areas. In Hawaii, for example, this population represents 62% of the state's population. In Philadelphia and the surrounding metropolitan area, 3% of all residents are of Asian descent, and is the fastest growing segment of the population (U.S. Census Bureau, 1990). Despite its growth in the U.S. at large, it has received minimal attention from Federal and state programs, and even less in the area of tobacco control and prevention, leading to limited understanding of tobacco-related health risks among its members.

Social scientific research occurs in a particular context. The category of Asian American and Pacific Islander (AAPI) is comprised of more

than 60 different ethnic/racial groups and subgroups. These differ in language, religion, culture, immigration and generation histories in the U.S., socioeconomic status, places of birth, nationality and the extent to which they are acculturated or assimilated into the White Anglo American culture (Kitano & Daniels, 1988; Sue & Sue, 1987). In addition, these communities vary in the extent to which they maintain their cohesiveness, traditional customs, values, language, and ethnic organizations (Austin, Prendergast, & Lee, 1989).

As early as 1980, AA were more than twice as likely to have a college education (34.3%) compared to the general U.S. population (16.2%), and exceeded the general population in median income (\$23,095 compared to \$19,917) [12]. Alcohol and other drug use also varies among these populations due to such factors as country of origin, socioeconomic status, place of birth, age, family structure, marital status, generation and immigration history, among others (Murakami, 1989; Skager, Frith, & Maddahian, 1989; 1986). These demographic factors determined how the needs assessment survey research was conducted among these Asian populations in the Delaware Valley region.

There are inherent challenges to conducting community-based research, especially among AA populations. These include language, illiteracy, selection of appropriate organizations which will yield a representative and sufficiently large sample, gaining access to membership lists or obtaining assistance from community leaders who have access to members, inability to fully establish a true random sample across all stratified clusters, and establishing the trust of community leaders and the membership in community organizations. In most instances, sampling procedures may require modification to account for these inherent challenges, while at the same time retaining the scientific basis of the research and the accuracy of the data that is gathered. Decisions based on these challenges no doubt can ultimately impact the allocation of resources for health prevention and intervention programs. A converse of this is the absence of any consideration of these inherent challenges,

placing at risk decisions associated with the appropriate allocation of resources.

Background: The ATECAR Needs Assessment Study

In Pennsylvania and New Jersey, AAPI comprise the fastest growing ethnic populations. In New Jersey, AAPI is projected to increase from 475,000 in 2000 to over 1 million by 2025. New Jersey now ranks among the top five in AAPI population density. During the same period, it is estimated that the AAPI population of Pennsylvania will increase from 218,000 to 490,000 (Asian Pacific American Institute for Congressional Studies, 1999). Of the new residents projected for Pennsylvania, 80% are expected to be primarily Asian immigrants (Philadelphia News Bureau). Currently, the largest subgroups of Asians in the seven counties include Chinese (22%), Koreans (23%), Vietnamese (11%) and Cambodians (5%) (Census Bureau, 1999). The establishment of the ATECAR project in 2000 reflects the concern of Temple University and the National Cancer Institute for the urgent needs of this largely underserved and poorly informed population about the risks associated with exposure to or use of tobacco.

The mission of ATECAR is to establish a sustainable public health infrastructure and strategic partnerships that foster comprehensive tobacco control and cancer awareness, prevention and intervention, and research and training for AA in the Delaware Valley region of PA and Southern NJ. In furtherance of this mission, the ATECAR research staff offer a variety of community-based tobacco education, and cancer awareness outreach, and research activities. The activities are conducted in conjunction with community-based organizations. At the outset of the project initiative, a comprehensive baseline needs assessment survey was conducted on smoking behaviors and associated cancer risk. The survey purpose was to determine (1) knowledge about and attitudes and behaviors toward tobacco and tobacco use, (2) acculturation and tobacco use, (3) what stage of change were Asian American smokers in, (4) knowledge of cessation and methods used for smoking cessation, (5)

knowledge of cancer information hotline, (6) knowledge of and desire to participate in clinical trials, (7) environmental exposure to cigarette smoke, and (8) advice given by professional healthcare providers in regards to tobacco use behavior.

Cultural and Methodological Challenges

The ATECAR research staff anticipated both cultural and methodological challenges, some based on findings of previous studies on AA populations, while others were based on the unique characteristics of the PA and NJ communities and their respective environments. A review of the literature indicated the following cultural challenges in the administration of surveys in AA communities: (1) a tendency among AA to feign a polite and agreeable attitude in certain situations and under certain circumstances even though they may have little or no understanding of the researcher's expectations; (2) a negative reaction on the part of AA toward researchers who fail to address males and elders first, which can lead to ineffective professional interactions) (Ho, 1976); (3) language; (4) subtle differences between AA and other ethnic groups in interpretation of questionnaire items due, in part, to the formers' lack of exposure to research requiring cooperation of human subjects; (5) the traditional sharing of food and refreshments in AA gatherings where collective group action is anticipated; and (6) the need on the part of researchers to contact AA participants personally, rather than by letter, and to inform them ahead of schedule of the planned activity and their role in it (Kim, McLeod, & Shantzis, 1995). ATECAR research staff considered other challenges that included literacy, varying educational levels of community participants, and availability and types of resources to be offered as incentives for participation in the survey. Consideration of these challenges and issues improved the probability of community participation, the application of sound scientific procedures and methodologies, and the gathering of appropriate and relevant data for the survey. An elaboration on some important issues follows.

Diversity of Educational Levels: Diversity of educational levels in the AA population at large, and among its subgroups, influenced response patterns during the implementation of the pilot test of the survey. Variability in response patterns dictated procedural changes that included on-site decisions regarding the language in which the survey was to be administered. Surveys were available in English and in native languages. Verbal directions were given prior to survey administration, and interpretation was provided for certain survey questions that are highly culturally or linguistically sensitive (i.e., a question that may yield different interpretation depending on cultural or linguistic contexts).

Informal Approach: Promotion of the survey had to be done in an informal manner using personal visits to AA organization leaders, or by telephone, word of mouth, and solicitation from members of the Asian Community Cancer Coalition. The Asian Community Cancer Coalition was formed by ATECAR initiative to bring together representatives of over 50 Asian organizations in the Delaware Valley area to work together to reduce Asian American tobacco use and improve cancer education. Standard community survey techniques such as mail surveys and computer-assisted methods were found to be ineffectual in this population. Mail surveys, in particular, elicit fears associated with exposure of personal information especially to unknown entities. Many AA come from either closed societies or societies that are controlled by autocratic regimes and where any activity associated with provision of information may be suspect. Establishing a trust relationship with community leadership was therefore a critical element in mobilizing the community and focusing its effort on the survey and its potential long-term benefits to its membership, ensuring an adequate response.

Establishing trust with the Asian American community members cannot be emphasized enough. The principal investigator, a Chinese American, was very active for several years in Asian American organizations. After the formation of ATECAR, it took approximately six months to establish trust among numerous

Asian American organization leaders in the area and to establish the Asian Community Cancer Coalition. Trust was established through informal contact and by educating members of the coalition about long-term goals of tobacco reduction and cancer awareness and not just focusing on the immediate goal of conducting a needs assessment survey. A skills training program was conducted for members of the Asian Community Cancer coalition and other organizations. A mini-grant program was established to promote the development of proposals submitted by community organizations to get funding for tobacco prevention projects they conducted. All these activities contributed in building up the trust among members of the Asian Community Cancer coalition and ATECAR research staff.

Meaning of Survey Items: Variations in interpretation of certain words and phrases used in the survey led to disparate results. For example, on items where a four point Likert scale was used and where 3 = agree, and 4 = Strongly agree, participants were unable to discern the subtle difference between agree and strongly agree.

Meaning also eluded participants' understanding of the concept of percentages. This was particularly evident among participants with low levels of education. The two questions designed to elicit responses on the percentage of peers who smoked and the percentage of AA who smoked required interpretation by survey administrators. An item designed to elicit information about the number of friends of participants who smoked, created some confusion as to definition of friend. Participants inquired whether friends included or excluded acquaintances. Attitude items created similar confusion. For example, the statement "In my community it's OK to smoke cigarettes in most places," elicited such extreme responses as smoking was "OK" in the community and smoking in certain situations was permitted. A question designed to assess the impact of second-hand smoke on non-smokers, elicited what might be considered a more cultural than relevant response to the question. For example, when participants were asked to react to the

statement "I let visitors smoke cigarettes in my home," a few stated that while they allowed visitors to smoke in their homes, they preferred that visitors did not smoke. Among AA, it is inhospitable to dictate what visitors can or cannot do in one's home.

Language and Literacy: Although adequate guidelines were provided for completion of the survey in either the participant's native language (Korean, Chinese, Vietnamese or Cambodian) or in English, approximately 20-30%, especially those with low educational levels, needed one-on-one assistance. Despite the fact that such assistance was time consuming, the procedure ensured both a satisfactory questionnaire completion rate as well as more reliable responses to the questionnaire's content.

Incentives: There were limited resources for incentives to encourage participation in the survey. Efforts to compensate for this deficiency included the use of promotional materials such as T-shirts and key chains, and pre-survey briefing of survey administration teams and community partners to raise their levels of enthusiasm regarding the importance of the project and their unique contributions to the overall effort. ATECAR research staff also adopted previously tested successful strategies such as the offering of refreshments to participants [19].

Construction of the Survey Instrument

The 77 item survey instrument was composed of 10 sections which included demographics, acculturation, tobacco use, social influences, tobacco cessation, cancer clinical trials, environmental smoke, professional advice, knowledge, and attitudes. Some items were adapted from previous instruments which included the 2001 National Health Interview Survey, the 1998 National Household Survey on Drug Abuse, the 1999 Youth Risk Behavior Survey, the Florida Youth Tobacco Survey, and the American Indian Cancer Control Project, and modified for this survey. The questionnaire was field tested to determine the appropriateness of the format, content validity, the level of difficulty, the length of time to administer, and

to estimate reliability and validity. It took approximately 20-25 minutes to complete.

It took approximately six months to solicit cooperation from community organization leaders, to conduct the pilot test, recruit participants and administer the survey. The survey administrators consisted of six ATECAR research staff, and one to four staff from each of the 26 organizations which participated in the survey. Some organizations were larger than others and so more of their staff were needed to assist in the survey. Bilingual translators were provided. The translators included ATECAR research staff, who translated into Chinese and Vietnamese. The organizations provided Korean and Cambodian translators. The translators provided by the other organizations were compensated for their services, while other staff from the organizations volunteered. In some organizations, it was necessary to do a group translation. Field tests of the questionnaire revealed that it was not efficient to have a large group. Groups of 7-10 persons were the most efficient and effective. The translators were trained by ATECAR research staff to administer the questionnaire.

The questionnaire was translated from English into Chinese, Korean, Vietnamese and Cambodian. Almost all translators had a public health background, except the Cambodian translator, who was a professional translator. ATECAR research staff provided the Chinese and Vietnamese translation. The questionnaires were then pilot tested among the respective populations to determine any problems with the questionnaire, and to establish validity and reliability.

Validity. Face and content validity of the questionnaire were tested with 50 AA adults who did not participate in the main study. These participants were recruited from AA communities and consisted of organization members and members of the Asian Community Cancer Coalition. Participants were representative of the population being sampled and included Chinese, Koreans, Vietnamese, and Cambodians of different age groups.

An expert panel of ten health professionals examined the questionnaire. Their comments and recommendations were incorporated into the final version. The ethnically diverse group of experts represented smoking prevention and intervention specialists, university health education faculty, and members of the Asian Community Cancer Coalition. In addition to taking the survey, experts and participants were asked to complete a short form in which they commented on the clarity of the questions, directions, title, the appropriateness of the length, and readability to improve the format of the questionnaire (Stacy, 1987).

As shown in Table 1, experts and participants thought that the survey title, directions, and purpose were clear. They also thought that the language used in the questionnaire items were appropriate, the anonymity statement adequate, the demographic items appropriate, the instrument was clearly reproduced, and that the questions related to the content that was being studied. The expert panel thought that some questions should be deleted, others added, and both groups thought that the questionnaire was long.

Table 1
Responses by Health Professionals and Participants to Questionnaire Items

	Health Professionals (N = 10), %	Participants (N = 50), %
Title clear	100	91.3
Directions clear	60.0	97.9
Purpose clear	80.0	93.6
Understood questions	...	48.9
Appropriate item language	70.0	66.0
Appropriate Length	50.0	19.1
Questions not too personal	...	81.0
Multiple choice questions complete	...	30.4
Anonymity statement adequate	80.0	76.6
No questions should be deleted	30.0	...
Further questions should be included	40.0	...
Items appropriately grouped	60.0	...
Demographic items appropriate	90.0	...
Instrument clearly reproduced	70.0	...
Questions representative of all content related to the study	80.0	...

Reliability. The reliability of the questionnaire was tested with the Asian population. Internal consistency was measured by the Guttman split-half coefficient (SPSS, 1999). Several of the items had statistically significant correlations (Table 2). Ethnic origin and native language, whether closest friends smoked, whether anyone smoked in the home, and if family smoked in the home were all significantly correlated at .81 or above. Other items such as selection of seats

based on smoking sections in restaurants, addictive qualities of tobacco, the stimulatory effects of tobacco, being born outside the U.S., and admission of being a smoker all had statistically significant correlations of .34 or higher. Two items did not yield a correlation coefficient because two of the variables were a constant, namely, speaking a native language and cessation attempts.

Table 2
Split Half Reliability Results for Questionnaire Items

Group I	Group II	Correlations N = 60
Ethnic Origin	Native Language ^a	.86 ^{***}
Born in U.S.	Country of birth ^b	.34 [*]
Speak native language	Speak native language to friends	...
Ever smoke tobacco products	I never smoked ^b	.44 [*]
Does closest friend smoke	How many of your closest friends smoke ^b	.81 ^{***}
Tried to Quit	Times tried to quit	...
Anyone smoke in home?	Who smokes in home? ^b	.84 ^{***}
Another family smokes in home	Family members that smoke in home ^b	.84 ^{***}
Employed: Someone smoked in work area	Employed: Employer has special policy on smoking ^b	.08
Restaurant preferred seating section (smoking or nonsmoking)	In restaurant avoid seating next to smoker ^b	.57 ^{**}
Higher risk of cancer if smoke	Associated diseases with smoking ^b	.13
Smoking affects children's health	Smoking harmful to my health ^a	.20
Higher risk of cancer if smoke	Tobacco causes cancer ^a	.14
Tobacco not as addictive as other drugs	Tobacco use is habit difficult to break ^a	.56 ^{***}
If quit tobacco use, unable to relax	Tobacco use keeps me alert ^a	.57 ^{**}
Percentage of peers who use tobacco	Most people my age use tobacco ^a	.47
Cannot prevent most cancers	Lifestyle affects health ^a	.47
^a Contingency coefficient. ^b Phi correlation. [*] p < .05, ^{**} p < .01, ^{***} p < .001		

The split half reliability (.67) coefficient indicated that, overall, participants responded consistently to items throughout the questionnaire. The main measures that represented the majority of the questionnaire were chosen and reported acceptable and significant correlation coefficients ($p < .05$). The key areas such as identification of ethnic origin, country of birth, smoking status, number of friends who smoke, cessation, environmental smoke exposure, stimulatory effects of tobacco, and addictive qualities of tobacco all had significant correlations ($p < .05$) which indicates strong internal consistency.

As a result of the findings of the field test, the questionnaire was shortened, some items were deleted and several items were combined into one item. In addition to reducing the number of items, some items were rephrased so that

participants would be better able to understand the meaning of the question. Additional choices were also added to some multiple choice questions because participants suggested other responses that were not originally included on the questionnaire, but were frequently reported by the participants. Further, some participants may not have been completely fluent in English, a difficulty that was addressed by the translation of the questionnaire into Chinese, Korean, Vietnamese, and Cambodian languages in the main study.

Development and Implementation of Sampling Procedures

A stratified-cluster proportional sampling technique was adapted for this study (Federer, 1991). A current listing of Asian community organizations (n = 52) in the seven counties of the Delaware Valley region of PA and South NJ

was identified for the ATECAR project. Twenty-six (26) organizations were randomly selected as clusters from the list of 52 organizations. If a population is divided into subgroups or clusters, and the sample is randomly selected from the cluster, it can be defined as a cluster sample design (Federer, 1991).

The randomly selected organization clusters were stratified based on the four race/ethnicity groups: Chinese, Korean, Vietnamese, and Cambodians. A cluster sample is useful when the strata are more homogeneous with respect to the variable or variables of interest than the population as a whole (Federer, 1991; Cozby, 1997). The selected cluster can be grouped or stratified according to the subgroup characteristics or demographic variables such as gender, age, race/ethnicity, and education, and other factors which affect the analysis of the research data.

A proportional allocation process was also applied based on the population proportional data obtained from the Census Bureau (Census Bureau, 1999). The proportional allocation concept refers to the procedure of assigning the sample size proportionally to the size of the subgroup (Federer, 1991). The proportional target sample was inflated by an anticipated response rate of 0.7. For example, if the census proportional rate for Chinese was 22%, then the target sample size of Chinese in the sample would be 360 participants, based on a total desired sample of 1000. To achieve the desired response rate, it was determined that the sample size should be 514 participants, an inflated response rate. The actual number of Chinese participants obtained was 492, a number sufficiently above the 360 necessary respondents. In addition, the actual number of other subgroup participants included Koreans ($n = 521$), Vietnamese ($n = 223$), and Cambodians ($n = 138$). An inflated response rate was applied to each of the 26 organizations that were selected to participate in the study so that the necessary sample size would be obtained. It was anticipated that the organizations would fall short of the actual number needed, so the sample number was inflated. Cambodians represented

only 5% of the whole Asian population, so this group was “over sampled” to ensure increased probability that the data was representative of the population.

Key leaders and outreach bilingual staff in the selected 26 organization clusters were contacted and asked to help with the recruitment of their community participants who resided in the targeted geographic areas in this study. Some of these leaders also participated in the Asian Community Cancer Coalition. In addition, the selection of the geographic areas for the study was intended to maximize the coverage of AA across ethnic groups, ages, and socioeconomic status.

Originally, random systematic sampling or multistage probability sampling was considered so that each member of the population would have an equal probability of being selected. The plan for this study was to establish a membership mailing list of the target four-language Asian populations served under randomly selected Asian community organizations in the project-focused geographic area. However, several obstacles were encountered in implementing the original plan. These obstacles included a) access to membership lists, b) need for one-on-one explanation of survey items, c) use of four Asian languages, d) building trust, and f) limited resources for incentives. Some selected Asian community organizations provided a current membership list, while others could not provide such lists due to reasons of confidentiality. Without complete membership lists, the systematic random sampling process could not be performed completely.

Generalization to a specific population is usually not the first priority in studies designed to test the relationships between variables (Cozby, 1997). Due to the difficulties described above, a more feasible, practicable and economical sampling method was designed. It was based on the decision that the most important aspect of this study was examination of the relationships between variables rather than the accurate and full description of the population.

The sample size was determined by a statistical power analysis. The present study involved a number of statistical tests and the sample size was calculated for each using an apriori power analysis software program called GPOWER (Faul & Erdfelder, 1992). By convention, a power of .80 and a medium effect size was chosen for each test. The largest sample size indicated for the statistical tests was chosen (n = 216). It was determined that 1174 participants was an adequate sample for the statistical tests used in this study. Characteristics of the overall sample have been reported elsewhere (Ma, Shive, Tan, & Toubbeh, 2002).

Response Rate. Thirteen hundred and seventy-four (n = 1374) AA were recruited through twenty-six randomly selected organizations. The subgroup sample size consisted of Chinese (n = 492), Koreans (n = 521), Vietnamese (n = 223), and Cambodians (n = 138). A total of 1141

entirely completed the surveys yielding an average response rate of 83% (Table 3). Those that did not complete 90% of the questionnaire were excluded from the study. All participants were required to meet the following criteria: (1) were of Asian descent (2) were affiliated with one of the community organizations selected and (3) who volunteered to participate in the study. The response rates in this study compare favorably with those of other studies measuring tobacco use prevalence rates among AA. One CA study used a culturally adapted version of the Behavioral Risk Factor Surveillance System (BRFSS) developed by the CDC to survey Chinese, Vietnamese and Hispanics. Of the 359 eligible Chinese in Oakland, CA, 82%(n=296) participated in the face-to-face interviews. Of the 1705 eligible Vietnamese, 59%(n= 1011) participated in a computer assisted telephone survey (CDC, 1992).

Table 3
Response Rate

	Number of Recruited	Number of Surveys Completed	Response Rate
Chinese	492	404	82.1%
Koreans	521	445	85.4%
Vietnamese	223	179	80.2%
Cambodian	138	113	81.8%
Total	1374	1141	83.0%

Description of the Data Collection Procedure

A cross-sectional survey design was used in this study because of the common advantages provided by this method. The design is economical and enables the collection of a large amount of data in a reasonable amount of time, while also providing a means for standardization of data collection and for participants to maintain anonymity. In addition, the design can be used for descriptive and explanatory purposes in studies of large populations (Babbie, 1992, 1990; Fink & Kosecoff, 1998; Fowler, 2001; Sudman & Bradvurn, 1986). While additional steps had to be taken to use a questionnaire among the Asian American population, this

method is still an economical source of data collection compared to other methods that could be used. The economy of the source of data depends on how cost is defined. To sample AA, it may be less costly financially to survey by telephone or by mail, but the response rate will be very low because AA will be less likely to respond if this method is used. AA are likely to ignore these approaches, even with use of monetary incentives.

Key leaders and members of an Asian Community Cancer Coalition were contacted through personal visits to the organization's facility, coalition meetings, flyers, and by

telephone. Strategies for recruitment of participants and their involvement in the study were discussed with these leaders. The schedule for implementation and standard procedures were also arranged through their assistance. Organization leaders were also asked to address participants. A standard survey administrators training session was provided to all survey administrators, and for onsite bilingual translators. In addition, a survey administration handbook was developed for purposes of standardization of the administration of the survey. Scripts were developed for administrators to explain participants' rights, contact information, introductory letter to participants, how to introduce themselves to participants, and how to inform participants that the survey was voluntary and confidential.

Translators were provided by the community organizations; in some instances, these were organization leaders and/or Asian Community Cancer Coalition members. ATECAR research staff also provided translation, especially in Vietnamese, and Mandarin and Cantonese Chinese. The instructions on the questionnaire were read aloud by survey administrators. Each location was coded by ATECAR research staff. Participants completed the questionnaires onsite, which were then collected. Qualitative data were translated from the Asian languages into English by designated translators.

Discussion

This article described some of the methodological, procedural, cultural, and research issues and challenges associated with conducting survey research among AA, and how they were addressed in a comprehensive needs assessment survey of tobacco use. In response to methodological and logistical issues cited in the literature (Ho, 1976; Kim, McLeod & Shantzis, 1995) and to facilitate administration of the questionnaire, community leaders were approached for assistance in-person, at an Asian Community Cancer Coalition, and/or through the telephone. A comprehensive questionnaire was developed and translated into four Asian languages. Translators were provided during administration. Refreshments were served at survey administration sites. Males and elders

were approached for assistance when appropriate for administration of the survey. Where needed, participants were provided additional assistance in interpreting certain items. These community based methods facilitated community involvement and achievement of survey objectives.

A stratified-cluster proportional sampling technique was adapted for this study due to difficulties associated with research among community organizations. Community organizations in general and Asian populations in particular, pose difficulties in data collection. These difficulties include gaining access to membership lists, language barriers, need for one-on-one explanation of survey items, reduced uniformity of conditions, the need to maintain confidentiality, and the need to establish trust with the members of the organization prior to gaining an invitation to do the survey. AA are also very reluctant to give personal information to researchers. Current literature reveals that social scientists are perceived as outsiders in AA communities (Maynard, 1974). This was not a barrier in conducting this survey. ATECAR research staff are of Asian descent, are well versed in Asian cultures and languages, and established the trust of the community organization members prior to attempting to initiate the needs assessment.

The use of questionnaires among low-educated and non-English speaking populations is difficult and requires additional resources and steps to enhance the usefulness of the data gathered. Despite this challenges, this method is still economical depending on the amount and type of participants that are included in the study and the desired response rate. Further, the trust in the working relationship that has been established can lead to other cooperative prevention and intervention ventures such as media campaigns through Asian American print media and radio, organizations offering cancer information programs, promoting the Cancer Information Service (CIS) to obtain information about cancer, and by encouraging volunteers for clinical trials, to name just a few.

In general, this study reflects both methodological strengths and weaknesses. These are primarily a function of the nature of the community in which the study was conducted. Here are two examples of what are methodological strengths: (1) The selected population sample for the study was derived from clusters that were stratified according to subgroup characteristics and allocated proportionate to subgroup size. The smallest subgroup representing Cambodians was over sampled to ensure that the data were representative of the population. And, (2) This is a community-based study in which ATECAR and community organizations were involved in all phases of study design and execution, and in which participants received guidance directly from their respective leadership who were themselves also participants. The benefits accruing from this symbiotic relationship are numerous: voluntary participation based on trust, a strategy to recruit potential participants for our next-step research programs and activities, such as youth and adult smoking cessation programs, and cancer clinical trials, educational opportunities resulting from participation in the study, and pride of ownership, among others.

Methodological weaknesses are more a function of constraints rather than inherent design flaws. There are several of these: (1) The survey was intended to assess knowledge, attitudes, and behaviors of tobacco use and cancer awareness among an Asian population, but because it is a cross-sectional survey, causal inferences are necessarily limited. (2) Since the survey was based on a self-report, there is always the possibility of underreporting of smoking behavior. (3) The use of community-based organizations in the selection of participants imposes certain limitations on design especially with regard to a true randomization across all stratified clusters. Nonetheless, we did not

consider this constraint detrimental to the ultimate objectives of the study because our primary focus was on the relationship between variables and not on generalization to the total population. Notwithstanding this limitation, the methods used allow for an explanation of the relationships between variables among Asian members of community-based organizations.

Based on the results from the reliability study, the conclusion was made that the main measures of knowledge, attitudes, and behaviors relating to tobacco use, demographics, environmental smoke, whether closest friends are a smoker, acculturation, addictive qualities of tobacco, and stimulatory effects of tobacco among this AA population had satisfactory internal consistency. Future reliability studies need to be conducted over a 1-2 week period and include alternate-form methods and test-retest reliability methods (Devellis, 1991). Perceived norms for tobacco use and perceived risk of tobacco use had low to moderate internal consistency. This may be due to different interpretation of the items by respondents, lack of understanding of what the item was asking, or some confusion over what is normative in the culture and the extent of the harm caused by cigarettes.

Conducting a tobacco use and associated cancer risk needs assessment among AA in community organizations offers health professionals major challenges. There is a paucity of published research on the subject, a lack of developed culturally appropriate instruments, and a lack of understanding of a culture that has numerous inherent nuances. It is hoped that the discussion regarding the methodological, procedural and cultural challenges faced by ATECAR research staff in conducting this needs assessment study will facilitate further studies aimed at developing tobacco and cancer reduction prevention and intervention programs for this rapidly growing and underserved population.

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