

KNOWLEDGE AND PRACTICE: THE RISK OF CARDIOVASCULAR DISEASE AMONG ASIAN INDIANS. RESULTS FROM FOCUS GROUPS CONDUCTED IN ASIAN INDIAN COMMUNITIES IN NORTHERN CALIFORNIA

Objective: The focus groups were utilized to gather information on the perceptions of cardiovascular risk within the Asian Indian community, and to identify opportunities to design health promotion and intervention programs for Asian Indian communities.

Design: Qualitative methods were utilized to obtain perceptions of cardiovascular risk within 3 Asian Indian communities. Eight focus groups were conducted in either English or Punjabi.

Setting: These focus groups were conducted as part of a 3-year community-based participatory research project examining cardiovascular risk factors among the Asian Indian population in Northern California.

Participants: Focus group participants were selected through referrals from community-based organizations, postings in local community centers, and businesses. Fifty-seven men and women were recruited using snowball sampling.

Results: Six themes emerged from the focus groups: knowledge of cardiovascular disease, health and cultural concerns regarding diet, physical activity levels, stress as a factor for cardiovascular disease, acculturation concerns, and cardiovascular prevention ideas.

Conclusions: The use of focus groups was an effective method for gathering information on perceptions of cardiovascular risk, and collecting information on risk behaviors within these Asian Indian communities. In this study, we found that psychosocial and cultural factors, especially cultural issues concerning stress and acculturation, surfaced as key elements across all 8 focus groups. (*Ethn Dis.* 2004;14:497-504)

Key Words: Asian Indians, Cardiovascular Risk, Focus Groups, Interventions, Stress

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INTRODUCTION

Asian Americans are among the fastest growing populations in the United States, and include diverse ethnic groups with distinct languages, customs, and health practices. In 1998, they numbered 10.4 million, and are expected to reach 34.4 million by the year 2050, comprising 10% of all Americans.¹ The ethnic distribution of Asian Americans is quite varied, and includes groups such as Chinese, Filipinos, Japanese, Koreans, Vietnamese, and South Asians. South Asians, comprising people from Bangladesh, Bhutan, India, Maldives, Nepal, Pakistan, and Sri Lanka, are the third largest Asian community in the United States, with a population of 1.8 million. Asian Indians represent 16% of all those listed as Asian American.² Vital statistics from 7 selected states indicated that between 1979 and 1993, 39% of all deaths for Asian Indians were due to heart disease, and among all Asian Americans, the percentage of all deaths due to heart disease was greatest among Asian Indians.³ Research suggests that, regardless of the place to which they migrate, Asian Indians are at increased risk for cardiovascular disease;⁴ yet, there is little information on the cardiovascular risk and health practices of this group in the United States.

Studies in the United Kingdom⁵⁻¹²

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and Canada^{13,14} have examined several risk factors for cardiovascular disease, such as hypercholesterolemia, hypertension, diabetes, and body mass index, and have found that risk factor profiles vary considerably for the Asian Indian community.¹⁵ Other studies have examined the role of homocysteine levels, glucose intolerance and hyperinsulinemia, triglycerides levels, low high-density lipoprotein levels, abdominal obesity (waist-to-hip ratio), and lipoprotein (a) as other potential risk factors.¹⁶⁻²² The insulin resistance syndrome (obesity, diabetes, glucose intolerance) has been found to be prevalent in the South Asian population in the United Kingdom, and appears early among South Asian children, even those of normal body mass index.²³⁻²⁵ Researchers have also noted that South Asian diets may be high in saturated fats,²⁶ and others have speculated that psychosocial factors may contribute to cardiovascular disease.²⁷ We discuss the themes that arose from the discussions of the 8 focus groups conducted in Asian Indian communities, to examine possible underlying factors for cardiovascular disease in these communities. These focus groups were conducted as part of a 3-year community-based participatory research project examining cardiovascular disease risk factors among the Asian Indian population of Northern California. This 3-year project included the focus groups and a telephone survey.

METHODS

We interviewed a total of 57 women and men in the 8 focus groups. Men were harder to recruit than women, but

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at least 4 men were in each of the men's focus groups. The focus groups were utilized to gather information on the health and well-being of Asian Indians as it relates to cardiovascular risk, and to help identify opportunities to design health promotion and intervention programs for Asian Indian communities. The focus groups also allowed us to inform survey design, and to develop specific, culturally appropriate questions for the next phase of the project, which included collecting information from the same communities through a telephone survey. The focus groups allowed us to "cognitively pre-test"²⁸ the relevance of measures that we wished to include as measures of adaptation and acculturation, especially since many of the scales and measures that appear in the literature have not been validated with an Asian Indian sample. We also wanted to determine whether survey questions that had been developed for the non-Asian population were culturally relevant to this population. We hoped to determine what meanings were conveyed to the focus group participants by specific questions, and to analyze response patterns to specific items, such as questions about diet, physical activity, stress, and acculturation. The pilot phase of the planned survey served as a test of the acceptability of the wording on both the English and the Punjabi survey instru-

ments, and, ultimately, allowed us to test hypotheses that may be generalizable to the broader Asian Indian community.²⁹

Participants for the focus groups were drawn from several Northern California rural, urban, and suburban communities that are known to have substantial numbers of Asian Indian residents, based on 1990 census estimates, and the fact that these communities contain Asian Indian religious sites, cultural centers, and businesses that cater to Asian Indians. Focus group participants were recruited via fliers, telephone lists, e-mails to South Asian organizations, and by snowball sampling for individuals of South Asian heritage. Focus groups were conducted separately for men and women to maximize the comfort level individuals felt when speaking about topics such as family issues, stress, and cultural nuances that might be gender-specific.

Topics addressed in the focus groups included knowledge of cardiovascular disease risk factors, diet, physical activity, stress, and the role of culture and acculturation in the development of cardiovascular disease. Six of the groups were conducted in English, and 2 were conducted in Punjabi. Punjabi is one of the Asian Indian languages most frequently requested in the San Francisco Bay area, and was necessary for conducting the focus groups in the rural area.

Prior to the focus groups, a written focus group protocol and script was developed and utilized for the moderators of the focus groups, to encourage dialogue. Written informed consent was obtained, and all participants received a monetary incentive. All focus groups were conducted by a moderator, tape-recorded for transcription, and attended by a note taker.

In the rural community, local women were trained to conduct and facilitate focus groups in English and Punjabi. Tapes were transcribed verbatim for the English and Punjabi-speaking focus

groups. Transcripts were translated from Punjabi to English by conducting simultaneous translation-transcription.

Content analysis included compiling a list of the most common and recurrent themes that arose across all 8 focus groups. Focus group transcripts were analyzed by highlighting all significant quotations, then categorizing them into one or more common themes. A theme was identified when the majority of quotations dealt with the same concept. Focus group transcripts were also read independently by 4 readers who developed concept groupings consisting of 2 to 4 word summaries of each line or quote in the transcripts. The concept groupings were used to qualitatively monitor the accuracy of the themes.

RESULTS

Six themes emerged from the analysis of the 8 focus groups: knowledge of cardiovascular disease, health and cultural concerns regarding diet, physical activity levels, stress as a factor for cardiovascular disease, acculturation concerns, and cardiovascular disease prevention ideas. Participants discussed the roles of genetics, family history, and diet, in the development of cardiovascular disease. Participants spent considerable time talking about the stressors in their lives, and spoke of numerous issues related to acculturation.

Knowledge of Cardiovascular Disease

Participants were familiar with traditional risk factors for cardiovascular disease, and discussed family history, high cholesterol, and diet as potential mediators. Participants emphasized the role of genetics as a causal factor for developing cardiovascular disease. They spoke less frequently about high blood pressure, diabetes, smoking, and stress as potential risk factors.

Most participants noted that they became aware of cardiovascular disease

and the risk factors associated with it only after someone they knew experienced a heart attack. More than half the participants had family members who had suffered from cardiovascular disease. Often they mentioned fathers, grandfathers, husbands, brothers-in-law, and mothers as people with the disease, and were frustrated by the heart attacks in their families. Most of the time the individual who had a heart attack had a healthy lifestyle, had gone for regular checkups, had exercised, and was generally in good health. The participants conveyed the feelings of powerlessness they experienced when trying to understand how the disease developed. Participants were unsure why it happened to some people and not others. Even after recognizing that some lifestyle factors could cause heart disease, most of the participants discussed how the disease occurred suddenly, and shared how they had witnessed people dying without warning. One man recalled, "He died within a span of 10 minutes early in the morning. That was it. He had no history. It just happened. He was fine. He was perfectly fine." Another man stated, "Most Indian people are very unaware of the situation when it happens. They don't know enough about it. They don't know about cholesterol. The problem usually happens suddenly. The result is bypass [surgery] then they start taking it seriously. After that, then they are very aware of it."

Some participants mentioned that they did not know where to go to gain a greater understanding of cardiovascular disease, what questions to ask health professionals, or how to better understand their health status and risks. Most information on cardiovascular disease was gained through discussions with family and friends.

Health and Cultural Concerns Regarding Diet

Participants associated diet with the development of cardiovascular disease. They discussed cultural values that en-

couraged the consumption of traditional foods that are often very high in fat. Individuals seemed concerned by the use of oil in their foods. They talked specifically about how oil was used in most food preparations, particularly for pan-frying and deep-frying foods.

Social Implications Regarding Food

Food functioned as a central part of the family unit for the participants. The preparation and serving of food was seen as a nurturing act, most often given from the wife or mother to the rest of the family. One woman stated, "Food is also annadevta [God of Food]. [We] equate food with love." Often, nurturing meant including more butter and milk in recipes. Participants noted that they were resistant to reducing the amount of butter and whole milk when they prepared their foods, because they felt that reducing the fat content was equivalent to depriving themselves or their families.

Certain dietary modifications were sometimes met with opposition from older family members. One woman exclaimed, "[The] older generation do not believe that [low-fat milk] is good for kids. They say that we are taking away things from them. There is an inter-generational difference in how they perceive fat." When it came to making diet modifications, usually the most senior woman in the family influenced the decision-making process, and the younger women were frustrated by the challenges of attempting to introduce dietary changes.

Limited Choice of Foods in Social Settings

A concern brought up in all groups, particularly in the rural community, was the lack of control and choice of food items at community functions, parties, and sites of worship. Participants expressed their inability to control food options when they ate at friends' homes, and the immense social pressure to eat and prepare heavy, fattening foods at these gatherings. Certain assumptions

were expressed regarding food at community functions. For example, the more a guest ate, the more the host feels the food was appreciated. Participants noted that it would require a lot of work to change awareness and eating habits within the Indian community.

Modifications to Existing Diet

Individuals varied in the degree to which they made modifications. Some felt comfortable adding healthier items, others reduced the amount of oil/butter in their cooking, and others developed a comprehensive approach to healthy eating. People in the urban groups also seemed aware of fat content, were conscious of food labels, and attempted to diversify their diet.

The most common dietary modifications included avoiding ghee (a form of clarified butter), using less oil and butter in cooking, using olive oil, using reduced fat milk, reducing salt intake, and following a vegetarian diet. Women were more comfortable modifying the traditional Indian diet, rather than adopting a new diet altogether.

Women were open to altering their existing Indian diet, and were interested in sharing their ideas and alternative recipes with one another. They presented several ideas for modifying recipes with healthier substitutes. Women in the urban groups specifically discussed alternative cooking methods, such as baking some foods, instead of using the traditional method of pan-frying. Participants also discussed wanting specific advice from nutritionists on how to modify Indian recipes to make them healthier.

Vegetarianism

Participants assumed that following a vegetarian diet meant that they were consuming a low-fat or healthy diet. They discussed their disbelief when a vegetarian developed heart disease. Some participants recognized that being a vegetarian might not be as protective, "I am vegetarian, but everything we eat is fried in oil, ghee, and coconut oil.

That is just as bad. Our sources [of fat] are hidden and not as obvious as in nonvegetarian [meals].”

Physical Activity Levels

Most participants maintained some level of physical activity. Men in the urban communities tended to engage in physical activity, such as walking, running, and yoga, and exercised 5 to 7 times a week. Urban men tended to exercise alone, or joined sports activities and leagues at their workplace. Men in the rural focus groups enjoyed walking, and tended to exercise with their wives, or as a family. Women in the urban communities also were quite active, and they worked out a couple of times per week at health clubs, and exercised alone. Women in the rural communities walked, did housework, and looked after children for their physical activity.

Stress as a Factor for Cardiovascular Disease

Discussions of stress in the focus groups included issues related to work, children, joint families, and acculturation. Participants, especially men in the urban groups, did not identify with the word “stress.” Men in the urban group gave examples of “stress” in their lives only when the question was worded differently and they were asked to talk about “pressures” or “worries.”

On the other hand, participants in the rural community were more open to discussing stressors. These men regarded certain levels of stress as “acceptable,” and saw stress as part of life, “To progress, [you] have to take stress. If you are not taking stress, you are not taking challenges.” They were able to articulate the specific areas of stress in their lives and openly discussed stressors. However, participants did not make the link between stress and the possible effects of stress on their health. They also did not acknowledge that levels of stress could vary, and that there are unhealthy levels of stress as well.

Women in the urban areas were

stressed about their husbands’s health, their children, and having limited time for work and family. Most women in the rural area faced the stresses of joint families to a greater degree than did women in the urban communities. Women frequently talked about the stress of having the extra burden of worrying and caring for members of the extended family, “In-laws are dependent on you for social engagements, driving, taking to the doctors, social life for them.”

Across all 8 groups, participants worried about their children and their children’s values, with some women stating that they felt they had no control over what children are exposed to in American society. Other participants discussed some stressors of immigrating and the difficulties associated with this.

Acculturation Concerns

Acculturative stress, including adjustment to life in the United States, family, work, and the contrasting Indian and mainstream American cultural values, was a concern brought up across all 8 focus groups.

Adjustment to Life in the United States

The process of immigration and adjustment to the United States was a source of stress for most participants. Participants ranged from recent immigrants, who had lived in the United States for less than 5 years, to those who had been in the United States for more than 30 years. The recent immigrants tended to live in the urban area, and comprised men or families who came to the United States to study or work. There were also several women who had recently immigrated after marrying an Asian Indian man in the United States. These women experienced additional stress because they had very little social support other than their husbands. Immigrants conveyed their attachment to India.

Family and Work

In the rural community, immigration caused various levels of stress. For example, men who had higher academic backgrounds in India took entry level jobs on their arrival to the United States, and worked long hours, had low wages, and often had no family to support them. Reuniting with their families often made this transition easier. For many others, members of the extended family and parents remained in India, which created an additional strain. Participants in all groups acknowledged the decreased social support they felt upon coming to the United States, and the difficulties of living without the support of extended family.

Cultural Values

The children’s adjustment to an American lifestyle was also a source of concern. Participants noted their lack of control in bringing up their children. Many participants worried about cultural differences between India and the United States. Many parents wanted to see their children maintain traditional Indian values, including choice of their dating and marriage partners from within the community. One man noted, “In our Indian community, kids are also a big stress for our people. We try for our children to get their education and then, in the future, for them to get good jobs. The biggest stress is the social pressures that our kids wed in our community, not outside. These kinds of stresses are things that you can’t do much about, but they’re for sure always on your mind.”

Cardiovascular Prevention Ideas

Participants in all the focus groups detailed specific approaches for prevention strategies that would be the most effective for their communities.

Many participants suggested sites of worship as the most efficacious place to disseminate information about cardiovascular disease. They suggested holding information days, having physicians

speak to the community, or using sites of worship as meeting spaces. Participants emphasized their desire for information on how certain risk factors lead to cardiovascular disease, the effect of having 2 or more risk factors simultaneously, and the role of genetics in the development of cardiovascular disease.

Participants recognized that physicians are very well respected within the community, and noted the influence that a physician has in altering an individual's behavior. They stressed the importance of utilizing physicians in prevention efforts within the community, and in disseminating information on cardiovascular disease. One man stated, "In Indian culture, [the] doctor seems a demi-God. When the doctor tells you something, you have to listen. It won't make a difference with just any person." Many participants discussed wanting to work with a nutritionist to put together a cookbook with low-fat Indian recipes. They emphasized that dietary modification should include all women in a household and reiterated the importance of dialogue between generations.

They also recommended translated health educational materials in areas where there is one predominant Indian language spoken. However, most participants, particularly those in diverse Indian communities, stated that they would prefer to have materials in English, so that as many people as possible in the Asian Indian community would have access to the material, and they could translate it themselves to their particular language or dialect as needed.

Almost all participants suggested the use of television, radio programs, and the Internet for disseminating information on cardiovascular disease. The urban group felt that the Internet was the most effective way to reach members of the community on a mass scale. They suggested creating distribution lists, creating an online Indian cooking book, and utilizing chat groups. The rural community stressed the use of local tele-

vision and radio stations as the appropriate sites for disseminating information and publicizing health events. Women in the urban focus groups also suggested holding health screenings, forums, seminars, and creating an information hotline, as ways to involve the community.

DISCUSSION

The objectives that we had for the focus groups were achieved. We were able to gather significant information from Northern California's Asian Indian communities on their perceptions of risk factors associated with cardiovascular disease, which will help inform survey design for the next phase of the project, and helped us identify key themes we hope will ultimately guide health promotion and intervention programs focused toward the Asian Indian community. The focus groups better informed us on how to modify items for the survey instrument, as well as provided information that would improve interpretation of the quantitative responses from the survey. From discussions in the focus groups, additional scales on stress, acculturation, and culturally specific questions on food-frequency, were developed and included in the survey instrument.

Stress and acculturation surfaced as prominent themes throughout the 8 groups. It is important to recognize the role of stress in these communities as it relates to cardiovascular risk. Participants gave many examples of stress related to family, work, and acculturation, but often did not make the correlation between stress and hypertension.

We also observed that participants were aware of several risk factors for cardiovascular disease, and that awareness of risk factors increased when participants knew someone with the disease. In fact, many participants began making modifications in lifestyle only after discovering they had the disease, or when

someone they knew developed cardiovascular disease. Further efforts are needed to increase awareness and prevention among persons not yet affected by cardiovascular disease. It is important to reach the general Asian Indian community, and to encourage their participation in prevention activities.

Through discussions in the focus groups, we found that particular features of the community and culture may play a role in encouraging individuals to take an active approach to preventing cardiovascular disease. Gender influenced how cardiovascular risk factors were managed. Women were the primary decision-makers on whether to modify diet, and in what manner. However, there could be several women in one household, with seniority given to the oldest. Men and women engaged in different types of physical activity, and had differing access to health facilities. Men and women also perceived stress very differently. Many men did not feel comfortable identifying stress in their lives. Women did discuss the stress in their lives, but were less able to identify strategies to help them cope with their stressors.

Acculturation into American society posed various degrees of stress for most participants. The discussions on stress and acculturation in the focus groups reiterated many of the findings from past research on acculturation. Examining factors such as psychological and cultural factors may add to the understanding of the relationship between cultural factors and the prevalence of cardiovascular disease. The length of time Asian Indians have lived in the United States, their primary language, and other variables related to their level of acculturation and comfort level in navigating American society, may be potential variables. Acculturative stress has been defined as the physical, biological, social, cultural, and psychological difficulties faced by an immigrant.³⁰ Several studies examining stages and types of acculturation for Asian Indian communi-

Prominent themes

THEME 1. KNOWLEDGE OF CARDIOVASCULAR DISEASE

- Most participants seemed knowledgeable of the traditional risk factors such as obesity and high cholesterol.
- Participants believed that family history and diet were the most common reasons for developing cardiovascular disease.
- Many participants had friends or family members with cardiovascular disease.
- Participants noted examples of seemingly healthy young men who had heart attacks with no prior signs of heart problems.
- Most participants only became aware of cardiovascular disease when they were told by a practitioner that they had high cholesterol or high blood pressure.
- Both rural and urban communities discussed the difficulty in obtaining health information from health professionals and felt that communication was a concern.

THEME 2. HEALTH AND CULTURAL CONCERNS REGARDING DIET

- Participants viewed diet as one of the main risk factors for developing cardiovascular disease.
- Participants made changes in diet only after knowing of someone who developed cardiovascular disease.
- Participants discussed the role of cultural values with diet. Food was seen as nurturing not just nourishing.
- Women were aware of the risks of pan-frying and deep-frying food and wanted to reduce the amount of oil and frying they did in their homes.
- Most common diet modifications included avoiding ghee, using less oil and butter, using reduced fat milk, reducing salt intake, and following a vegetarian diet.
- Cooking methods were adapted and modified based on an intergenerational split—a certain cooking style for those who had recently immigrated and another for those who were more acculturated. Women in the urban group talked about making 2 separate meals when they cooked.
- Intergenerational conflicts were acknowledged as a potential barrier in making dietary modifications.

THEME 3. PHYSICAL ACTIVITY LEVELS

- Most participants recognized that physical activity or exercise reduced the risk of cardiovascular disease.
- Level of physical activity seemed to be relatively high among focus group participants.
- Most participated in physical activity of low to moderate intensity (walking, yoga, treadmill use).
- Participants engaged in regular exercise activity about 3–5 times a week.
- Many participants in urban groups had access to health facilities through their work sites.
- Barriers to physical activity included time constraints, young children, and long workdays.

THEME 4. STRESS AS A FACTOR FOR CARDIOVASCULAR DISEASE

- Participants did not identify with the word “stress.”
- Participants responded to words such as “pressures,” “tension,” and “worries.”
- Work- and family-related issues tended to be areas of the most concern for men.
- Women discussed their husband’s stress levels, children, immigration, loneliness, and caring for extended and joint families as examples of stress.
- The participants in the urban groups recognized the role of stress management and coping skills as factors contributing to overall stress levels.

THEME 5. ACCULTURATION CONCERNS

- Areas of acculturative stress included adjustment to life in the United States, family, work, and maintaining cultural values.
- Difficulties in transferring education and previous work experience into United States work force.
- Sense of responsibility towards extended family members and parents who remained in India.
- Participants acknowledged decreased social support once they came to the United States.
- Strain in balancing Indian and American values in raising children in United States.

THEME 6. CARDIOVASCULAR PREVENTION IDEAS

- Participants highlighted sites of worship and Asian Indian cultural centers as the best places for dissemination of information.
- Suggestions for community health promotion ideas included the importance of taking preventive measures, such as increasing physical activity levels, decreasing fat intake, reducing cholesterol levels, and quitting smoking.
- They also suggested developing specific tailored prevention programs by age groups ranging from youth to senior groups.
- Participants stressed the importance of utilizing physicians in outreach and education efforts.
- Participants highlighted the need for nutritionists to modify Indian recipes.
- Women noted the importance of including intergenerational issues when discussing diet modifications.
- Other possible interventions could include discussions on the recognition of stress and stress management techniques.
- Rural community emphasized television and radio programs as the most effective ways to reach the community whereas the urban communities felt that the Internet was the most effective way to educate the community.
- Participants suggested the use of forums, seminars, and hotlines as methods for dissemination of information.

ties in the United States have illustrated the role of acculturation in contributing to stress and adaptation.^{31,32} Past research has found that issues concerning family and children are fundamental stressors for the Asian Indian commu-

nity.³³ An important component of family stress, mentioned by both parents and their children in past studies, is the inter-generational conflict that surfaces when acculturation concerns adapt and change with each successive immigrant

generation.³⁴ For the parents, the main area of conflict when acculturating into the United States is how the children assimilate, particularly the dating preferences of their children.³⁵ In our focus groups, many members of the younger

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generation discussed introducing diet modifications, being working mothers, and negotiating change within the extended family. The close-knit structure of the family and extended family, and the values associated with religion, are also factors that influence the degree of acculturative stress experienced by Asian Indian immigrants.³⁶

Cultural stress and recent immigration have been hypothesized to contribute to the high prevalence of hypertension among certain Asian and Pacific Islander American populations. Psychosocial factors, such as depression, anxiety, character traits, social isolation, and chronic life stress,³⁷ have also been shown to contribute to the risk of cardiovascular disease. Despite these apparent sources of stress, members of the Asian Indian immigrant community do not seek professional help to cope with tensions within the family and work place.³⁰

These focus group results are a preliminary attempt to understand the perceptions of cardiovascular risk factors in select Asian Indian communities in Northern California. We feel that understanding these perceptions will ultimately assist researchers in developing effective interventions to decrease the rates of cardiovascular disease in the Asian Indian community. Results emphasize the importance of continued research endeavors that involve the community in developing culturally relevant interventions. Focus groups were an ap-

propriate measure to use in this case, because they stimulated discussion on topics that may not have been accessed broached through other research methods. However, the results presented here are only representative of the experiences of those who participated in the focus groups, and may not be generalizable to the entire Asian Indian community or other populations. It is necessary for future research to systematically look at cardiovascular risk within the larger Asian Indian community. Funding and initiatives need to be in place so that a large-scale, prospective cohort study can be conducted within the Asian Indian community in the United States.

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AUTHOR CONTRIBUTIONS

Design and concept of study: Ivey, Srinivasan, Kalra

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Data analysis and interpretation: Kalra, Srinivasan, Ivey

Manuscript draft: Kalra, Srinivasan, Ivey, Greenlund

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South Asians (SAs) are at heightened risk for cardiovascular disease as compared to other ethnic groups, facing premature and more severe coronary artery disease. The risk of hospitalization for ischemic heart disease among Asian Americans in northern California. *American Journal of Public Health*, 84 (10), 1672-1675. CAS PubMed PubMed Central Google Scholar.

1. Focus group Focus group participants included 1 LCHC staff member and 10 community residents. The focus group, facilitated by the primary investigator from the Health Forum, was conducted in English and Khmer; most participants spoke in Khmer. The focus group was tape recorded, transcribed, and translated.

2. Key informant interviews Four key leaders from the Cambodian community were interviewed. Interviewees were required to have held a leadership position in the Cambodian community of Lowell, Massachusetts. In this article, the influence of cardiovascular risk factors on occurrence and progression of the diabetic foot syndrome in the Indian diabetic population during a 1-year follow up was analyzed.

Materials and Methods. The study was conducted in Dialife Diabetic Centre, Manjeri, Kerala, South India in 2007-2009. Cardiovascular disease was defined as either a history of physician-diagnosed cardiovascular disease (e.g., previous myocardial infarction, angina, coronary-artery bypass grafting, or stroke) or ischemic changes detected on a 12-lead electrocardiogram.