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# Building Capacity in the Sikh Asian Indian Community to Lead Participatory Oral Health Projects

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## Abstract

**Background—**Lack of access to oral health care is a significant burden for disadvantaged populations, yet rarely draws the attention of policymakers or community leaders.

**Objectives—**To understand how UNITED SIKHS identified oral health care as a priority need through its involvement in community-based participatory research (CBPR) initiatives and local data collection, thereby building its capacity to lead participatory oral health projects.

**Methods—**The foundation for the partnership between UNITED SIKHS and the New York University (NYU) Prevention Research Center (PRC) was the joint implementation of a CBPR project to prevent diabetes in the Sikh Asian Indian community. Project partners also included a community coalition composed of religious leaders, health providers, members of the media, and dental students and faculty at the NYU College of Dentistry (NYU Dentistry). A community needs and resources assessment survey was jointly developed and conducted in 2010 to better understand health needs in the Sikh community.

**Results—**Fewer than one-half of the Sikh participants (43.0%) reported ever receiving a check-up or screening by a dentist, and of those who did, only one-half (50.0%) reported that it occurred in the past 12 months. Upon clinical assessment, more than one-half of Sikh adults (58.2%) had untreated dental decay. The collection and analysis of local data motivated UNITED SIKHS to develop new priorities based upon the findings.

**Conclusions—**UNITED SIKHS applied for and received external funding to lead a CBPR project that developed, implemented, evaluated, and disseminated a culturally tailored oral health and healthy living curriculum for the Sikh Asian Indian community.

### Keywords

Oral health; dental health services; health disparities; community-based participatory research; Asia; delivery of health care (integrated); community health partnerships

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Dental caries and gingival and periodontal diseases are common, preventable oral conditions that often begin in childhood and may have lifelong impacts on health and quality of life.[1] Oral diseases are more common in disadvantaged communities and marginalized populations than in their wealthier counterparts, yet rarely draw attention in health policy

and health services discussions.[2,3] Public health approaches that stress prevention and improve access to oral health care for underserved populations, including racial/ethnic minorities, immigrants, and non-English speakers, are key to improving oral health equity in the United States and throughout the world.[3,4]

Importantly, the links between oral health and general health have long been recognized.[2] In particular, the bidirectional relationship between diabetes and periodontal disease has been documented in the scientific literature, including for the population of India.[5] Periodontitis is more severe in patients with diabetes[6,7] and pre-diabetes.[8] Further, the presence of periodontitis has been associated with poor metabolic control, increased risk of long-term morbidity, and premature mortality.[9,10]

South Asians have an increased risk of developing diabetes compared with other racial/ethnic groups, and India has the second highest number of people with diabetes worldwide.[11] A study conducted in New York City found that foreign-born South Asian respondents were nearly five times more likely to have diabetes compared with White respondents.[12] Since the terrorist attacks of September 11, 2001, reports of hate crimes, school bullying, workplace discrimination, and religious and racial profiling have been reported among racial/ethnic minorities, including Sikh Asian Indians.[13] Sikh Asian Indians are particularly vulnerable to discrimination because they often wear turbans (men) and scarves (women) as articles of the Sikh faith.[14]

There is sustained interest in understanding how community–academic partnerships are able to address the unique cultural, social, economic, and resource needs of underserved communities and marginalized populations[15] and build capacity for community-based organizations to lead participatory health initiatives, including oral health projects.[16] CBPR partnerships are considered to be a translational strategy for diverse communities to improve health equity[17] and achieve a more just society.[18]

Oral diseases and noncommunicable diseases such as diabetes are closely linked by sharing common risk factors, such as excess sugar consumption, as well as underlying infection and inflammatory pathways.[19] Hence, efforts to integrate oral health into general health via the common risk factor approach and renewed emphasis on oral health promotion and disease prevention through interdisciplinary teamwork are key to achieving oral health equity.[19]

The aims of this paper are two-fold. First, we detail how UNITED SIKHS, a community-based organization serving the Sikh Asian Indian population, identified oral health care as a priority need through a community needs and resources assessment completed in 2010 as part of a CBPR diabetes prevention intervention.[20,21] Second, we demonstrate how UNITED SIKHS used local data to develop a culturally tailored oral health and healthy living curriculum for the Sikh Asian Indian community.[21]

# METHODS

## Sikh Asian Indian Community

The South Asian community in the United States includes individuals who trace their ancestry to Bangladesh, Bhutan, India, the Maldives, Nepal, Pakistan, and Sri Lanka, as well as members of the South Asian diaspora who originally settled in other parts of the world.[22] Based on 2012 data, New York City is the U.S. metropolitan area with the largest South Asian population and Asian Indians comprise more than 80% of the South Asian community.[22]

Sikhism is a religion founded in the Punjab region of India and its adherents have distinct health behaviors and practices compared with Asian Indians overall.[13] Given the unique cultural, linguistic, and social profile of Sikh Asian Indians in New York City as compared with other immigrant groups, tailored health promotion and intervention efforts may be important in improving health outcomes.[13]

## Project Partners

UNITED SIKHS was founded in 1999 when a group of Sikhs from the New York City metropolitan area worked together to assist in the socioeconomic development of immigrant communities in the borough of Queens[23] (Table 1). It is currently the largest Sikh Asian Indian social service agency in the United States and pursues projects for the spiritual, social, and economic empowerment of underprivileged and minority communities.[23]

The New York Universitry (NYU)–City University of New York (CUNY) Prevention Research Center (PRC) was established in 2014 with funding from the U.S. Centers for Disease Control and Prevention (CDC),[24] although an earlier iteration at NYU only was founded in 2009. The PRC emphasizes collaborative research and focuses on community health workers (CHWs) to bridge the gap between underserved communities and clinical care.[24]

The NYU College of Dentistry (NYU Dentistry) is the third oldest and largest dental school in the United States.[25] Its nearly 1,900 students were born throughout the United States and 40 foreign countries; nearly 50% are women and racial/ethnic minorities,[25] including Sikh South Asians.

The diabetes prevention and oral health promotion projects that are the focus of this report were guided and supported by members of a Community Advisory Board. In addition, seven gurdwaras (Sikh places of worship) in New Jersey and New York participated as sites for the formative research and subsequent interventions, including 1) Gurdwara Nanak Naam Jahaj, Jersey City, New Jersey, 2) Sri Guru Singh Sabha, Inc., Glenrock, New Jersey, 3) Gurdwara Singh Sabha, Port Reading, New Jersey, 4) Plainview Gurdwara, Plainview, New York, 5) Gurdwara Sant Majha Singh Karamjotsikh Center, South Ozone Park, New York, 6) Sikh Cultural Society, Inc., Richmond Hill, New York, and 7) Gurdwara Makhan Shah Lubana, Richmond Hill, New York.

## Partnership Formation

The foundation for the partnership between UNITED SIKHS and the PRC was the joint implementation of a CBPR project to prevent diabetes in the Sikh Asian Indian community.[20] UNITED SIKHS had longstanding experience hosting health clinics in the Sikh Asian Indian community, where a high prevalence of diabetes had been documented among its members, thus making diabetes prevention a priority need.

Upon project initiation, a community coalition was formalized leveraging existing partnerships between UNITED SIKHS and key community partners, including community and religious leaders, health providers, and members of the media. The PRC identified health professionals and scientists with expertise in the content areas and research skills relevant to the project.

## Community Needs and Resources Assessment

In the first phase of the project, UNITED SIKHS and the PRC developed a community needs and resources assessment survey to better understand health needs, health behaviors, access to services, and the prevalence of diabetes and its risk factors in the Sikh community. CHWs were hired by and based at UNITED SIKHS to help build capacity within the organization for health research and program implementation, as well as to better ensure their acceptance by Sikh community members. UNITED SIKHS and its community coalition partners provided expertise in cultural competency, relevance of survey questions, and participant recruitment; the PRC provided expertise in survey development and evaluation.

Surveys were administered in Punjabi by trained volunteers at health and cultural fairs at gurdwaras and other community settings in Queens, New York, between March 2012 and May 2013. Sociodemographic, health, and health care measures were adapted from the National Health Interview Survey,[26] the National Health and Nutrition Examination Survey,[27] the Behavioral Risk Factor Surveillance System,[28] and the New York City Community Health Survey.[29] Further details regarding the methods and procedures are available elsewhere.[20] The NYU School of Medicine Institutional Review Board reviewed and approved all protocols for this assessment and subsequent interventions, with PRC investigators and staff completing all of the requisite submissions and attendant requirements.

## Diabetes Prevention Intervention

In the second phase of the project, a CHW-led education intervention to prevent diabetes in the Sikh community titled, Project RICE (Reaching Immigrants through Community Empowerment) was collaboratively designed by UNITED SIKHS and its partners. Before implementing the intervention, the project CHWs based at UNITED SIKHS participated in a 105-hour core competency-based CHW training,[30] which was developed by the PRC in partnership with community and academic experts. The PRC staff and investigators also facilitated access to additional trainings for the CHWs throughout the course of intervention.

The experience gained by UNITED SIKHS in designing and implementing Project RICE built its capacity to work collaboratively with key community institutions on health promotion and disease prevention activities. The intervention was initially implemented in Richmond Hill and later expanded to South Ozone Park, two neighborhoods in Queens that are home to large populations of new immigrants and Asian Indians,[31,32] including the largest percentage of Sikhs in New York City.[33] Sikhs in these communities are served by several large gurdwaras, for example, the Sikh Cultural Society, Inc., and Gurdwara Makhan Shah Lubana in Richmond Hill, and the Gurdwara Sant Majha Singh Karamjotsikh Center in South Ozone Park, where community members congregate for religious services, educational and social programs, and community meals that are sponsored and prepared by volunteers.

## Descriptive Study of Oral and General Health Conditions

In the third phase of the project, UNITED SIKHS was the lead applicant on a 2012 funding opportunity to build local and national capacity for community engagement on oral health issues; initially the NYU (and later the NYU–CUNY) PRC and NYU Dentistry were its subcontractors. This restricted funding opportunity was sponsored by the DentaQuest Foundation[34] in collaboration with the National Community Committee of the CDC Prevention Research Program[35]; only PRCs and their community partners were eligible to apply. National Community Committee members share information with one another on how communities are best served through CBPR initiatives, toward ensuring that community needs and priorities are met. A UNITED SIKHS staff member who was also the CHW supervisor for Project RICE (R.K.) represented the NYU PRC on the National Community Committee from 2009 to 2014. Although UNITED SIKHS had previously partnered with dental student groups at NYU Dentistry to conduct oral health screenings under the supervision of faculty dentists, the recruitment of a public health expert concerned with the integration of primary care and oral health care (M.E.N.) was facilitated through the PRC investigators.

In August 2012, UNITED SIKHS and its partners were awarded a 1-year planning grant by the DentaQuest Foundation to conduct a descriptive study of oral and general health conditions in the Sikh community toward developing a project subsequently entitled, Sikh American Families Oral Health Promotion Program.[21] Upon notification of funding support, UNITED SIKHS formed a community advisory board to help guide the development of the oral health promotion project, which included previous members of the Project RICE community coalition, faculty, and staff from the PRC and NYU Dentistry, dental students, community-based oral health care providers, community leaders, and representatives from faith-based organizations in New Jersey and New York.

A survey instrument was adapted from national, state-based, and local surveys.[26–29] A clinical oral health screening instrument for use in community-based settings was provided by NYU Dentistry. The instruments were adapted for relevance to the Sikh Asian Indian community and were reviewed by community advisory board members to ensure cultural appropriateness. Specifically, community advisory board members provided input on the best ways to approach issues of a sensitive nature, for example, questions regarding tobacco

use, which is discouraged in the Sikh faith. The concept of prevention was tied to Sikh core values, including a discussion of the concept of “Saint-Soldier” in Sikhism, which promotes discipline in spiritual practice as well as in social responsibilities. Acknowledging the need to relieve stress, Naam Simran, a meditative practice in Sikhism, was championed as a health promotion practice.[20]

Because tobacco use was less than 2.0% in preliminary surveys, the decision was made to not address tobacco use in subsequent project activities, but rather to focus on practices that were relevant to the Sikh community, such as excess sugar consumption. Further, at the request of community advisory board members, oral health knowledge questions were included to gain a baseline understanding of oral health knowledge in the community, which were used to evaluate the subsequently developed oral health promotion program. All survey instruments are available as online appendices.

Project CHWs participated in trainings sponsored by the PRC and UNITED SIKHS on research methods, qualitative and quantitative interviewing, focus group facilitation, and data collection. The trainings emphasized oral health promotion and the links between oral and general health, highlighting the bidirectional relationship between diabetes and periodontal disease.[6–10]

In Spring and Summer 2013, oral and general health screening events were planned in partnership with two gurdwaras in Port Reading, New Jersey, and one gurdwara in Queens, New York, for a total of three events; collaborative meetings were held with key gurdwara leaders to ensure support for and ownership of the project. Volunteers trained in the research process provided valuable input on methods to effectively reach local community members, successfully involve the gurdwaras, and strengthen project credibility within the Sikh community. Community advisory board members and community volunteers from the gurdwaras assisted in organizing and promoting project events through multiple announcements during regular services on Fridays and Sundays, placing posters and flyers on display, posting on gurdwara listservs that reached congregation members, and using social media outlets. Community advisory board members were also instrumental in connecting the project team with local providers and recruiting volunteers for the events. CHWs recruited participants at partner gurdwara sites as well as at other community locations. All data collection was conducted by CHWs from Sikh Asian Indian communities.

## RESULTS

The response rates in the surveys and clinical assessments were 100%, because only adults interested in participating in the health and cultural fairs attended the screening events. The results of the Project RICE community needs and resources assessment completed in 2010 motivated UNITED SIKHS to develop new priorities (Table 2).

In particular, fewer than one-half of the Sikh participants (43.0%) reported ever receiving a check-up or screening by a dentist, and of those who did, only one-half (50.0%) reported that it occurred in the past 12 months. As expected, most of the Sikh participants—the

majority of whom were men (72.2%)—were born in India (97.6%), spoke Punjabi as their primary language (90.4%), were married (87.6%), and had an annual household income of less than $15,000 (52.7%); few Sikh participants had ever smoked cigarettes (0.6%) or used other tobacco products (1.2% used chewing tobacco, paan/gutka, zarda, or gul a few times per month), which are largely prohibited in the Sikh religion.

The sociodemographic, health, and health care characteristics of participants in the descriptive study of oral and general health conditions conducted in 2013 in partnering gurdwaras are presented in Table 3.

In this subsequent survey, the majority of the participants were women (54.9%). In most other respects, however, the sociodemographic characteristics of the respondents mirror those of the participants in the earlier community needs and resources assessment. In particular, most of the respondents were born in India (96.4%) and speak only Punjabi at home (76.3%). The majority lacked both health insurance (70.8%) and dental insurance (80.2%). Although most respondents reported having a regular doctor (65.1%), only about onethird (35.3%) reported having a regular dentist. The results of the clinical assessments conducted by supervised dental students are provided in Table 4.

At the time of the examinations, 14.1% of participants experienced dental pain and fully 95.2% were recommended for further evaluation of their oral health care needs.

### Sikh American Families Oral Health Promotion Program

In the fourth phase of the project, the analysis of local data reported here were used to develop the Sikh American Families Oral Health Promotion Program. As per the principles and spirit of CBPR,[36] the community advisory board was critical in developing and implementing the research, and provided input on the design, evaluation, and dissemination of the program and the logistics of participant recruitment. UNITED SIKHS again recruited CHWs from the community to serve as community educators for the oral health promotion program. The CHWs who had been trained for Project RICE were instrumental leaders in engaging community members to serve as community educators. Community advisory board members met once in person and then conferred via conference calls. In addition, they provided feedback on how best to package the results to report back to their congregations and communities. The UNITED SIKHS principal investigator (R.K.) and investigators at NYU presented project findings at public health and implementation science conferences and workshops.

UNITED SIKHS staff reported that as a result of the survey and screening events, the leadership at the host gurdwaras and community participants felt ownership of the project and were “all about data.” That is, they asked for the results of the screening events after they had been completed, demonstrating an increased interest in using evidence to promote oral health in the community that had not existed previously.

## DISCUSSION

### High Burden of Oral Disease

Although the burden of oral disease is high in disadvantaged populations, the findings of the clinical assessments presented in Table 5 are particularly sobering. For instance, in 2011 and 2012, 24.9% of U.S. adults and 42.9% of those with family incomes at lower than the poverty threshold had untreated dental decay,[37] compared with 58.2% of Sikh adults (Table 4).

### Community Partner Perspective

From the perspective of UNITED SIKHS, partnering with NYU schools and centers has been critical in building our capacity to develop and lead public health and oral health promotion projects. Reflecting on the past 6 years of collaboration, the benefits in terms of increased access to expertise, training, data, credibility, trust, relationship building, identifying community needs, participation in the U.S. national dialogue, funding, capacity building, and services are considerable for not only our organization, but also for the local Sikh Asian Indian community and NYU schools and centers (Table 5). The research and practice infrastructures and expertise provided by our academic partners enabled UNITED SIKHS to be more effective in developing community-driven projects. Without the ability to leverage these resources, it would have been much more difficult for us to formalize partnerships, expand and maintain health coalitions, and coordinate community and academic efforts. In addition, as a result of the partnership, UNITED SIKHS has developed important relationships with other community-based organizations and institutions within the Asian American community that have enabled us to better leverage resources for health promotion activities in the Sikh Asian Indian community, both locally and more broadly. As one example, UNITED SIKHS was contacted by Sikh dental colleagues in Oregon to collaborate on health promotion projects, including medical and dental camps to be held at one of their local gurdwaras in July 2017.

As an organization, our involvement with a project funded by the CDC and in partnership with NYU has led to increased credibility within the community, affording us the ability address critical community needs. Our partnership has also provided us with access to restricted funding opportunities, such as through the National Community Committee of the PRC program.[35] Further, our partnership has generated subsequent opportunities to engage in community–academic collaborations to address health issues in our communities, including increasing access to healthy foods and beverages, health insurance enrollment, and hypertension management resources.[38]

Moreover, members of our staff have received training and professional development in research and public and oral health-related topics facilitated by the PRC and NYU Dentistry. For instance, project partners, including dentists, dental hygienists, and research staff, developed and participated in a 4-day community educator training. Hands-on instruction was provided on proper brushing and flossing techniques, culturally tailored health promotion methods (i.e., preparing healthy Sikh meals and using the plate method to determine the proper balance and size of portions), and goal-setting skills.[21] When UNITED

SIKHS staff members perform activities related to our public and oral health endeavors, we benefit from having credibility in the community to do this work, in part owing to our associations with an academic medical center and college of dentistry, as well as the CDC.

Access to technical assistance provided by the PRC, such as expertise in research design, survey development and evaluation, and data analysis, has allowed UNITED SIKHS to develop rigorous scientific studies and evidence-based interventions in the Sikh Asian Indian community, as well as to obtain necessary data to better identify community needs and enable the reassessment of organizational priorities to meet those needs. Timely and relevant data about our community is also important for UNITED SIKHS to provide effective guidance on community-engaged research to the PRC program as part of the National Community Committee.

Project partners are continuing to implement community-focused initiatives that address chronic conditions such as diabetes, hypertension, and obesity, involving not just individuals but also entire communities. For example, we are working with gurdwaras to implement changes in langar, a free, vegetarian community meal that is typical north Indian fare, central to the concepts of equality and service of Sikh Asian Indians. As a first of its kind, planned intervention in a tradition that dates back to the origin of Sikhism more than 500 years ago, the start of this conversation is a significant achievement and speaks highly of the successful partnership between the gurdwara, UNITED SIKHS, and the PRC, as well as the potential for far-reaching successes that community–academic partnerships may bring about if they are scaled up to reach entire populations.

## Challenges Associated with the Partnership and Processes to Resolve Challenges

There are tremendous benefits to building capacity for community-based organizations to lead participatory health projects, including the ongoing transformation of the research paradigm to better ensure that the results of studies enhance social justice and improve health equity. Nonetheless, institutional and organizational challenges were experienced that required the engagement of all partners to address. First, although UNITED SIKHS incurs relatively low indirect costs, it subcontracted to the PRC for evaluation expertise, which in turn subcontracted to NYU Dentistry for oral health expertise. Hence, substantial indirect costs were incurred on the NYU subcontract amounts, which limited the overall budget and the percentage of their time that NYU investigators and staff were able to charge to the grant. In the end, NYU investigators and their research staffs and colleagues donated substantial time over and above the budgeted amounts, underscoring their commitment to UNITED SIKHS and its mission.

Second, frequent staff turnover at UNITED SIKHS meant that academic investigators and staff frequently needed to acquaint new team members with implementation and evaluation protocols. We are indebted to all team members for their generosity with one another and “can-do” approach to meeting project goals.

Finally, the service mission of UNITED SIKHS and the research and practice missions of the PRC and NYU Dentistry meant that our timelines did not always align. It took longer than initially anticipated to receive institutional review board approval. The writing and

submission of grant proposals and peer-reviewed papers was time intensive and required the best efforts of all partners to support one another, even after support had ended.

## CONCLUSIONS

This study is the first to report the extent of the unmet oral health care needs in a local Sikh Asian Indian community using a CBPR approach. Limitations include the lack of a population-based sampling frame. Hence, these findings are not generalizable to Sikh South Asians who do not live in ethnic enclaves and attend gurdwaras in New Jersey and New York. Moreover, the general and oral health assessments reported here were limited by the field nature of the studies. Nonetheless, the findings presented in this article were critical in motivating UNITED SIKHS to engage with partners at the local, state, and national levels to ensure that oral health is part of the conversation around overall health and well-being. Although the expansion of Medicaid under the Affordable Care Act provided a mechanism for Sikh Asian Indian program participants to obtain dental insurance for themselves and their children,[21] this law is under threat of repeal. Project partners thus remain active in the New York State Oral Health Coalition. The first author (R.K.) was a steering committee member for the 2017 annual meeting. Working with agencies, organizations, and institutions throughout the state dedicated to oral health equity, we participate in initiatives and work with our elected officials to ensure that vulnerable populations receive the prevention, access, and educational means to achieve oral health for themselves and their families.

## Supplementary Material

Refer to Web version on PubMed Central for supplementary material.

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**Table 1**

Timeline of Activities

| Year | Activity |
|---|---|
| 1999 | Founding of UNITED SIKHS |
| 2009 | CDC funding of NYU Prevention Research Center with *Project RICE*; UNITED SIKHS representation on the National Community Committee begins |
| 2010 | Community needs and resources assessment conducted as part of *Project RICE* |
| 2012 | DentaQuest funding of *Sikh American Families Oral Health Promotion Program* |
| 2013 | Descriptive study and clinical assessments conducted in gurdwaras |
| 2014 | CDC funding of NYU-CUNY Prevention Research Center |

*Abbreviations*: CDC, Centers for Disease Control and Prevention; CUNY, City University of New York; NYU, New York University.

## Table 2

Sociodemographic, Health, and Health Care Characteristics of Sikh Participants (N = 171)

| Characteristic | n (%)* |
|---|---|
| Gender† | |
| Female | 47 (27.8) |
| Male | 122 (72.2) |
| Age group (in years)† | |
| 18–34 | 13 (7.6) |
| 35–44 | 38 (22.4) |
| 45–54 | 68 (40.0) |
| ≥55 | 51 (30.0) |
| Place of birth‡ | |
| India | 165 (97.6) |
| Pakistan | 4 (2.4) |
| Place of residence‡ | |
| Brooklyn | 5 (3.3) |
| Bronx | 2 (1.3) |
| Manhattan | 1 (0.7) |
| Queens | 137 (90.1) |
| Other | 7 (4.6) |
| Marital status‡ | |
| Married | 149 (87.6) |
| Living with partner | 1 (0.6) |
| Widowed | 8 (4.7) |
| Divorced | 1 (0.6) |
| Never married | 10 (5.9) |
| Single | 1 (0.6) |
| Employment status† | |
| Full-time | 72 (44.2) |
| Part-time | 28 (17.2) |
| Self-employed | 1 (0.6) |
| Student only | 1 (0.6) |
| Unemployed | 36 (22.1) |
| Retired | 9 (5.5) |
| Other | 8 (4.9) |
| Housewife | 8 (4.9) |
| Highest education level completed‡ | |
| No formal education | 13 (7.8) |

| Characteristic | n (%)* |
|---|---|
| Elementary | 13 (7.8) |
| Junior high school | 26 (15.7) |
| High school or general education development (GED) | 61 (36.7) |
| Some college or university | 9 (5.4) |
| College or university graduate | 32 (19.3) |
| Graduate-level or advanced degree | 12 (7.2) |
| Annual household income‡ | |
| < $15,000 | 58 (52.7) |
| $15,000 to $55,000 | 45 (40.9) |
| > $55,000 | 7 (6.4) |
| Primary language‡ | |
| Punjabi | 122 (90.4) |
| Hindi | 1 (0.7) |
| English | 4 (3.0) |
| English + South Asian language | 2 (1.5) |
| ≥2 South Asian languages | 3 (2.2) |
| Other | 3 (2.2) |
| Ever received a check-up or screening by a dentist?§ | |
| Yes | 65 (43.0) |
| No | 86 (57.0) |
| If yes, then how long ago was the dental screening received?§ | |
| Past 12 months | 19 (50.0) |
| 1–2 years | 11 (28.9) |
| 2–3 years | 4 (10.5) |
| ≥3 years | 4 (10.5) |
| Ever smoked cigarettes? (smoked ≥100 cigarettes in lifetime)‡ | |
| Yes | 1 (0.6) |
| No | 167 (99.4) |
| How frequently use chewing tobacco, paan/gutka/zarda, or gul?// | |
| Few times per month | 2 (1.2) |
| Not at all | 167 (98.8) |

*Totals may vary owing to missing values or skip patterns. Percentages may not sum to 100% owing to rounding.

†Question from the National Health Interview Survey (see reference 26).

‡Question from the New York City Community Health Survey (see reference 29).

§Question from the National Health and Nutrition Examination Survey (see reference 27).

//Question from the Behavioral Risk Factor Surveillance System (see reference 28).

## Table 3

Sociodemographic, Health, and Health Care Characteristics of Sikh Participants (N = 195)

| Characteristic | n (%)* |
|---|---|
| Gender† | |
| Female | 107 (54.9) |
| Male | 88 (45.1) |
| Age group (in years)† | |
| 18–34 | 24 (12.5) |
| 35–44 | 47 (24.5) |
| 45–54 | 59 (30.7) |
| ≥55 | 62 (32.3) |
| Place of birth‡ | |
| India | 188 (96.4) |
| Pakistan | 5 (2.6) |
| Canada | 1 (0.5) |
| United Arab Emirates | 1 (0.5) |
| Place of residence‡ | |
| New Jersey | 122 (62.6) |
| Queens, New York | 73 (37.4) |
| Highest education level completed‡ | |
| No formal education | 12 (6.2) |
| Elementary | 27 (14.0) |
| Junior high school | 25 (13.0) |
| High school or general education development (GED) | 63 (32.6) |
| Technical or vocational school | 5 (3.0) |
| Some college or university | 20 (10.4) |
| College or university graduate | 24 (12.4) |
| Graduate level or advanced degree | 17 (8.8) |
| Language(s) spoken at home‡ | |
| Punjabi | 148 (76.3) |
| Hindi | 2 (1.0) |
| English | 1 (0.5) |
| English + South Asian language | 9 (4.6) |
| ≥2 South Asian languages | 11 (5.7) |
| Other | 23 (11.9) |
| Do you have health insurance?‡ | |
| Yes | 56 (29.2) |
| No | 136 (70.8) |

| Characteristic | n (%)* |
|---|---|
| Do you have dental insurance?‡ | |
| Yes | 38 (19.8) |
| No | 154 (80.2) |
| Do you have a regular doctor or health care professional?‡ | |
| Yes | 127 (65.1) |
| No | 68 (34.9) |
| Do you have a regular dentist?§ | |
| Yes | 69 (35.4) |
| No | 126 (64.6) |
| How long has it been since you last visited a dentist?§ | |
| < 1 year | 75 (39.9) |
| 1–3 years | 68 (36.2) |
| > 3 years | 27 (14.4) |
| Never visited a dentist | 18 (9.6) |
| During the past 12 months, was there a time when you needed dental care but could not get it?§ | |
| Yes | 46 (27.1) |
| No | 124 (72.9) |
| Overall, how would you rate the health of your teeth and gums?§ | |
| Excellent | 4 (2.1) |
| Very good | 26 (13.3) |
| Good | 84 (43.1) |
| Fair | 53 (27.2) |
| Poor | 28 (14.4) |

*Totals may vary owing to missing values or skip patterns. Percentages may not sum to 100% owing to rounding.

†Question from the National Health Interview Survey (see reference 26).

‡Question from the New York City Community Health Survey (see reference 29).

§Question from the National Health and Nutrition Examination Survey (see reference 27).

**Table 4**

Clinical Assessments of Sikh Participants (N = 183)

| Characteristic* | n (%)† |
|---|---|
| Place of residence | |
| New Jersey | 115 (62.8) |
| Queens, New York | 68 (37.2) |
| Occurrence of pain | |
| Yes | 21 (14.1) |
| No | 128 (85.9) |
| Oral hygiene | |
| Good | 18 (12.6) |
| Fair | 86 (60.1) |
| Poor | 39 (27.3) |
| Periodontal status | |
| Acceptable | 77 (50.0) |
| Questionable | 77 (50.0) |
| Recommended for further evaluation | |
| Yes | 160 (95.2) |
| No | 8 (4.8) |
| Number of decayed teeth based on a total dentition of 28 teeth | |
| 0 | 74 (41.8) |
| 1 | 48 (27.1) |
| 2 | 18 (10.2) |
| 3 | 12 (6.8) |
| 4 | 10 (5.6) |
| ≥5 | 15 (8.5) |
| Number of missing teeth based on a total dentition of 28 teeth | |
| 0 | 87 (49.2) |
| 1 | 29 (16.4) |
| 2 | 23 (13.0) |
| 3 | 7 (4.0) |
| 4 | 3 (1.7) |
| ≥5 | 28 (15.8) |
| Dental care needs based on a total of 183 participants | |
| Dentures | 36 (19.7) |
| Periodontics | 113 (61.7) |
| Fillings | 75 (41.0) |
| Oral surgery | 32 (17.5) |
| Other oral health care needs | 2 (1.1) |

*Questions and clinical assessments as per the New York University College of Dentistry Outreach Patient Encounter Form.

†Totals may vary due to missing values or skip patterns. Percentages may not sum to 100% due to rounding.

**Table 5**

Summary of the Benefits of Partnership for the Conduct of Public Health and Oral Health Projects

| | **Community-Based Organization (UNITED SIKHS) Gained Access to:** | **Community (Sikh Asian Indian Community in New York and New Jersey) Gained Access to:** | **Academic Partner (New York University Schools and Centers) Gained Access to:** |
|---|---|---|---|
| Expertise | Expertise in research design, survey development and evaluation | Culturally and linguistically appropriate research interventions and health education programs and materials | Expertise in cultural competency and relevance to the community |
| Training | Training and professional development for staff | Trained community health workers from the community | Individuals with the appropriate community knowledge to serve as community health workers and research assistants |
| Data | Expertise in data analysis | Data about the health status, needs, and resources of the community | Expertise in the process of data collection within the community |
| Credibility and trust | Credibility in the community for public health endeavors owing to association with an academic medical center and college of dentistry | Credible and trustworthy organizations with expertise in serving the public health and oral health needs of the community | Trust by the community to perform research due to partnership with respected community-based organization |
| Relationship building | Exposure to develop important relationships with other community-based organizations and to better leverage resources for health promotion activities | Potential for better coordination between organizations serving the community | Exposure to develop important relationships with other community-based organizations and to better leverage resources for health promotion activities |
| Identifying community needs | Data to better identify community needs and enable reassessment of organizational priorities to meet those needs | Potential to receive services that are more targeted to meeting community needs | Data to better identify community needs and enable reassessment of research priorities to meet those needs |
| Participation in U.S. national dialogue | A community forum with influence at the U.S. national level to affect federal policy on community engaged research | A community forum in which community advocates can better ensure their health concerns are part of the U.S. national conversation | A community forum with influence on the U.S. national level to affect federal policy on community engaged research |
| Funding | Access to targeted funding opportunities | Potential to benefit from funded projects | Ability to apply for targeted funding opportunities |
| Capacity building | Capacity building (in terms of research expertise) to develop and lead a community health initiative | Capacity building (in terms of knowledge of available expertise and services) to improve community health and well-being | Capacity building (in terms of cultural expertise gained) to develop and lead a community health initiative |
| Services | Entry to conferences and workshops to augment networks and knowledge | Free health screenings and referrals to care | Training of students and staff in community-based research and care |