

Bangladeshi Immigrants in New York City: A Community Based Health Needs Assessment of a Hard to Reach Population

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Abstract South Asians, particularly Bangladeshis, are one of the fastest growing immigrant groups in the U.S. Limited data exist regarding the health needs of Bangladeshis in the U.S. More data are needed to guide health intervention efforts for this community. To help address this gap, we conducted a community-based health needs assessment survey among women in a Bangladeshi population living in Bronx, NY. Community health promoters conducted a door-to-door household survey and collected data from 167 women, an approach that yielded a participation rate over 90%. Over half reported fair or poor health and 36.5% screened positive for risk of depression. Only 35% had engaged in physical activity over the past month. 60% reported never having received a pap smear. Using WHO guidelines for BMI, 74% were either overweight or obese. Age-standardized prevalence of type 2 diabetes and hypertension were 15.4 and 36.5% respectively. In a

multivariable logistic regression model, age and percent lifetime in the U.S. were independently associated with having diabetes. Poor health behaviors and high prevalence of cardiovascular risk factors observed in this group suggest the need for early health promotion and prevention interventions.

Keywords Bangladeshi · South Asian immigrants · Community based participatory research · Needs assessment

Background

South Asian immigrants from the Indian subcontinent, including India, Pakistan, and Bangladesh, are one of the fastest growing immigrant groups in the United States, with the population estimated to approach over three million in 2011. While the waves of South Asian immigrants to the United States in the 1960s and 1970s were largely educated professionals, the demographics have changed in recent years. Since the 1980s many working class and poor South Asians have migrated to the United States, forming dense communities in urban areas [1]. Members of these new communities may face major social and economic challenges and significant health disparities compared to the native population. These include high rates of obesity, cardiovascular disease and related syndromes including hypertension, hypercholesterolemia, and diabetes [2, 3]. Women may be particularly vulnerable to some of these health disparities. Studies of South Asian women immigrants suggest that women are at higher risk for obesity [3] and depression [4]. Yet little is known about US South Asian communities and more specifically the subgroups within this population. Addressing health disparities among

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disadvantaged groups depends in part on the collection of accurate and relevant research data [2].

Unfortunately, the epidemiological information available on South Asians in the United States is sparse [3, 5, 6]. One major problem is that most large scale national health surveys have reported aggregated data which did not distinguish between Asian subgroups. Another issue is the historically low participation rates of South Asian immigrants in health surveys. For example the NHANES (National Health and Nutrition Examination Survey) began disaggregating Asian subgroups in 2009, but the sample sizes for these groups can be unreliable due to very small samples. The National Health Interview Survey (NHIS) began collecting disaggregated data on Asians starting in 1992, with a separate category for Asian Indians starting in 1997. However, this telephone administered survey has significant limitations: it likely excludes many non-English speakers, as well as those without a land-line telephone. The NHIS is also plagued by low response rates among many ethnic groups, resulting in unreliable health data for these groups [7, 8]. Local health departments, such as the New York City Department of Health, have conducted local area health surveys, such as the NYC Community Health Survey and the NYC HANES (Health and Nutrition Examination Survey), which include samples from NYC immigrant communities. However the validity of these surveys has been called into question by low participation rates: 55% in the NYC HANES and 30–35% in the NYC Community Health Survey [9, 10]. A recently published study on Asian subgroups using New York City HANES data reported a South Asian sample size of only 37 [11].

Furthermore, little research distinguishes South Asians according to ethnicity and country of origin. Among South Asian immigrants in the United States, socio-economic, linguistic, and cultural factors vary sharply across groups [12–14] and may play a role in shaping different social and health needs among these groups [13, 15]. In order to develop culturally appropriate health promotion intervention for South Asian immigrants, subgroup level data is needed.

Among South Asians, Bangladeshi immigrants constitute one of the newest and fastest growing immigrant communities in the United States with nearly half of all Bangladeshi immigrants in the U.S. residing in the New York metropolitan area [16]. Bangladeshi immigrants are less educated and poorer than other South Asian immigrants [16]. Although a few studies have examined cardiovascular disease, tobacco use, and domestic violence among Bangladeshi Americans, these studies relied on small samples [17, 21].

To help address the gap in knowledge on Bangladeshi immigrants, the investigators conducted a needs assessment in a New York Bangladeshi community. To avoid

some of the pitfalls associated with other surveys such as low response rates, we partnered with a South Asian community based organization, Westchester Square Partnership (WSP). WSP serves the Bangladeshi immigrant community in the Bronx.

Methods

We incorporated principles of community based participatory research (CBPR) in designing and implementing our study. CBPR uses a collaborative approach to research. A key principle is the involvement of community members in the research process. CBPR approaches to survey studies and community health needs assessments are a promising strategy for accessing linguistically and culturally isolated communities [18, 19].

Training Community Health Workers

WSP selected six community members to serve as health promoters from students in its ESOL (English for Speakers of Other Languages) class. All students in the ESOL classes were Bangladeshi women, and thus all health promoters were women. All women spoke Bengali. WSP provided training in health issues, community outreach, communication, and ethics.

Building Community Support

WSP built trust and gained support in the community by conducting an awareness campaign that included placing flyers and posters around the neighborhoods, hosting health fairs, and through word of mouth. To prepare residents for the survey, the health promoters conducted door to door outreach in the Bangladeshi neighborhoods in which they planned to collect survey data. Pamphlets and other information about WSP, its programs, and the health assessment survey were distributed during this outreach phase.

Sample

The Westchester and Parkchester neighborhoods of the Bronx, with their heavy concentration of Bangladeshi immigrants, were selected for the survey. We used a community mapping approach in order to select specific buildings for data collection. Based on the knowledge of community members, including the health promoters, buildings known to have high concentrations of Bangladeshi residents were selected for visits by the data collection team. Health promoters visited the selected buildings between September and November 2009 and

attempted to contact each household in the building. If there was no response on the first visit, the health promoters conducted up to two repeat visits.

Inclusion criteria for participation in the needs assessment survey included age >18, female gender, and Bangladeshi country of origin. In this pilot, only women were included since cultural norms precluded the female health promoters from interacting with male respondents. Additionally, since the ESOL classes only targeted women, men were not available to serve as health promoters/interviewers. The study was approved by the Albert Einstein College of Medicine IRB.

To examine differences between the Bangladeshi sample and women from other racial/ethnic groups, the investigators compared the survey data to data from the 2008 and 2009 New York City Community Health Survey (CHS). The CHS is a cross-sectional telephone based survey of non-institutionalized adults across New York City. It is conducted by the New York City Department of Health and uses a population based stratified random sample. All data collected are self-report [9].

Measures

A needs assessment survey for the Bronx Bangladeshi community was developed utilizing an adapted version of the 2008 and 2009 New York City Department of Health Community Health Survey to allow for comparisons between the Bangladeshi sample and other groups in New York City [20]. The CHS was adapted by translating questions into Bengali and back-translating to English for verification. The translated survey was then pre-tested among the health promoters to ensure comprehension and accuracy. The adapted survey covered questions about demographics, access to health care, health behaviors, and chronic disease. Self-rated general health was assessed using the question: Would you say in general that your health is: excellent/very good/good/fair/poor. Responses were dichotomized into either excellent/very good/good or fair/poor. In addition to CHS questions, the two item Patient Health Questionnaire (PHQ-2) was included as a screener for depression and was considered positive if the score was 3 or greater. The PHQ-2 is a commonly used clinical screening tool for depression and using a cut off of 3 results in acceptable sensitivity and specificity [22]. To calculate rates of overweight and obesity, the adapted survey also measured height and weight of all participants.

Data Collection

Community Health Promoters obtained oral informed consent from all participants and orally administered the questionnaire in Bengali to women 18 years or older in the

respondents' home. One woman from each household was interviewed. Height, weight, and waist circumference were measured for all non-pregnant women. All other information was self-reported. The CHS data used was from the public use dataset available through the internet [9].

Analysis

Data was compiled and entered into a Microsoft Access database. Survey data was cleaned and analyzed using STATA Intercooled version 11 (StataCorp, College Station, Texas). Descriptive statistics were examined for outliers. Income to federal poverty level ratios were calculated using family size and reported income, and participants were classified dichotomously as above or below the FPL.

Means of continuous variables across groups were compared by student's *t*-test. Categorical variables were compared using Chi-square where appropriate. Prevalence estimates for diabetes, hypertension, hyperlipidemia, and physical activity were age standardized to the U.S. 2000 census population. Both NIH/CDC guidelines and WHO recommendations for Asians (establishing lower risk thresholds for Asian groups) were used to define rates of overweight and obesity [23–25]. Three multiple logistic regression models, one for diabetes, hypertension, and hyperlipidemia each, were used to examine the relationship between disease status, age, and percent of lifetime spent in the U.S., controlling for BMI and waist circumference.

For comparison purposes, age standardized proportions of general health status, diabetes, hypertension, hyperlipidemia, physical activity, pap smears and mammograms were compared to rates for other ethnicities from the CHS. We excluded women over 65 years of age in the comparative analysis since our sample contained only one respondent over 65. Chi-square statistics were used to test for differences among the racial/ethnic groups for these conditions. We conducted all analyses involving CHS data using Survey procedures in STATA to account for complex sample design of the CHS data.

Results

Sample

Of the 769 households visited, 184 were Bangladeshi. Overall participation rate among Bangladeshi households was 90.8% ($n = 167$) with 17 women refusing. Table 1 shows demographic characteristics of respondents. Women in the sample were young with a mean age of 35 ($SD \pm 9.28$). Nearly all were married. The median number of years in the United States was 4 years. The mean household size was 4.4 individuals/home ($SD \pm 1.3$). 58

Table 1 Demographic characteristics

	n	SD (\pm)
Response rate	90.8% (167/184)	
Age (mean)	35.1 (162)	9.28
Years in U.S. (median)	4	
Years in U.S. (mean)	5.6 (149)	4.76
Education		
Less than high school	34.7% (58)	
H.S. graduate or equivalent	21% (35)	
Some college	20.4% (34)	
College graduate or more	22.8% (38)	
Comfort using English	9% (15)	
Income-to-poverty ratio		
<100%	55.1% (49)	
101–200%	37.1% (33)	
201–300%	4.5% (4)	
>300%	3.4% (3)	
Unknown or refused	46.7% (78)	
Marital status—married	99% (165)	
Employment status		
Employed	18.6% (31)	
Housewife	77.2% (129)	
Not in labor force	2.4% (4)	
Looking for a job	0.6% (1)	
Health insurance		
Insured	91.6% (153)	
Medicaid	77.8% (130)	
Employer-based	5.4% (9)	
Medicare or other	6.6% (11)	
Entire family is insured	77.2% (129)	
No response	8.4% (14)	
Mean household size	4.4	1.3

All categories do not add up to 100% due to item non-response. All percentages are unadjusted

(34.7%) women had less than a high school degree and only 15 (9%) respondents were comfortable using English. 129 (77.2%) women were housewives and not employed outside the home. 89 participants provided household income, with most others saying they did not know. Of those providing income information, 49 (55.1%) lived below the federal poverty level. Most women reported having health insurance ($n = 153$, 91.6%) with majority covered by Medicaid ($n = 130$).

Health Indicators

89 (53.3 or 46.1% when age standardized) respondents reported having fair or poor health, which was higher than for the 4 other ethnic groups in the NYC CHS (Table 2). 61 (36.5%, unadjusted) women had a positive PHQ-2 screen for

depression. Using CDC/NIH criteria for BMI categories, 54 women (32.3%, unadjusted) were overweight ($BMI \geq 25$) and 31 (18.6%) were obese ($BMI \geq 30$). According to WHO and an Indian physician panel recommendations for BMI cutoffs for Asians and Asian Indians [23, 24], 39% were overweight and 34.6% were obese. 82 women (49.1%, unadjusted) had waist circumference greater than 88 cm, indicating increased risk of having or developing cardiovascular disease and type 2 diabetes.

Age standardized prevalence of self reported hypertension and hyperlipidemia were 36.5 and 34.6% respectively. The age standardized prevalence of self-reported diabetes was 15.4%. Compared to women from other racial/ethnic groups in the New York City Community Health Survey, Bangladeshis had the highest rates of hypertension, hyperlipidemia, and diabetes ($P < 0.0001$) with the exception of non-Hispanic black women who had a similar rate of hypertension (Table 2). In multivariable logistic regression models, both age (OR = 1.10, 95% CI 1.04–1.17) and the percentage of total lifetime lived in the U.S. (OR = 2.71, 95% CI 1.21–6.09) were independently associated with diabetes. Age, but not time lived in the U.S. was significantly associated with having hypertension or hyperlipidemia (Table 3).

Health Behaviors

Physical activity or exercise was extremely low among this group of women. Only 35.1% of women (standardized to the 2000 U.S. Census) reported engaging at least once in any leisure time physical activity or exercise over the past 30 days. When compared to other racial/ethnic groups in the New York City Community Health Survey (Table 2), Bangladeshi women had a much lower rate of physical activity than any other racial/ethnic group ($P < .0001$).

Approximately 45.4% ($n = 67$, age standardized) of women reported never having received a pap smear for cervical cancer screening (Table 2). When compared to other groups, Bangladeshi women were much more likely to never have received a Pap smear ($P < 0.0001$). Among women over 40 years old, 24% ($n = 10$, age standardized) reported not receiving a mammogram for breast cancer screening in more than 2 years, this was similar to rates for other racial groups (Table 2). 17.4% ($n = 29$, unadjusted) of respondents chewed paan (a practice common in South Asia and highly associated with oral cancers) and over half of these used chewing tobacco in their paan (16 out of 29).

Discussion

South Asians are a highly diverse group characterized by significant linguistic and other social socio-cultural

Table 2 Age-standardized health indicators and behaviors by race/ethnicity

	Bangladeshi (%)	White ^b (%)	Black ^b (%)	Hispanic ^b (%)	Asian ^b (%)	P*
Diabetes	15.38	4.45	7.94	11.64	8.32	<.0001
Hypertension	36.46	23.60	37	29.80	26.1	<.0001
Hyperlipidemia	34.56	26.70	23.8	28.10	24.9	<.0001
Received PAP smear	54.60	77.20	87.3	84.3	67.9	<.0001
Mammogram (within past 2 years) ^b	75.60	75.40	80.6	82.8	76.3	0.13
Engaging in physical activity	35.10	77.60	69	64.1	62.8	<.0001
Self-rated general health (reporting poor or fair)	46.06	9.68	13.13	21.33	18.75	<.0001

Women 65 years old and over were excluded. Percentages are age-standardized to the U.S. 2000 census population and differ from the raw percentages given in the text for Bangladeshis

* Chi-Square test for differences among groups

^a Data from the 2008 and 2009 NYC Community Health Survey

^b Percentages are for women 40–64 only

Table 3 Association of age and residence in the U.S. with prevalence of diabetes, hypertension and hyperlipidemia

	Odds ratio	95% CI	P
Diabetes			
Percent lifetime in U.S. ^a	2.71	1.20–6.23	0.017
Age	1.10	1.04–1.17	0.002
Hypertension			
Percent lifetime in U.S. ^a	0.98	0.45–2.12	0.960
Age	1.15	1.08–1.22	<0.0001
Hyperlipidemia			
Percent lifetime in U.S. ^a	1.00	0.53–1.89	0.988
Age	1.09	1.04–1.14	0.001

Models were adjusted for BMI and waist circumference

^a Indicates 5% increments in percent of life spent in the U.S

differences. To date, most studies on South Asians in the United States have focused on relatively wealthy and educated samples [2, 3, 26]. As a result, newer, low income and underserved groups have been little studied. To our knowledge, this is the first community based study examining health behaviors and indicators of Bangladeshi women in the United States. Our study of an urban Bangladeshi community indicates high levels of unmet need for both health and social conditions. Nearly half of those responding reported incomes at or below the federal poverty level. More than 90% of the women reported limited English proficiency.

The community based participatory approach in this study involved collaboration with a local organization. We employed peer health workers from the community and worked with these community members to identify a sampling strategy. Our experiences suggest the value of this approach when working with a culturally and linguistically isolated group. Among Asian Americans and other immigrant groups, linguistic and cultural barriers

may be a major factor hindering participation in research [27–29]. Though most other surveys report high refusal rates, ours was less than 10%. This pilot demonstrates the feasibility of recruiting and training community health workers to collect data in a culturally and linguistically isolated community.

Our results indicate that low income, urban Bangladeshi women experience significant health disparities when compared to other racial/ethnic groups in New York City and are characterized by high levels of cardiovascular risk. Furthermore, rates of physical activity are extremely low when compared to other racial/ethnic groups in New York City. This has important implications as a recent study of cardiovascular mortality from the United Kingdom found that nearly 20% of excess mortality among South Asians was explained by physical inactivity ([30]*). The WSP survey found a statistically significant association between self reported diabetes and time lived in the U.S., even after controlling for age. This finding is in line with other recent studies showing a similar association [31, 32]. It suggests the need for early intervention in immigrant groups with the goal of preventing diabetes and cardiovascular disease.

Rates of pap smear in our sample were relatively low, especially when compared to other racial/ethnic groups from in New York City community health survey. Low rates of cervical cancer screening may be partially explained by the fact that pap smears are generally not a part of the health seeking behaviors or routine primary care screening in South Asia (including Bangladesh) despite high levels of cervical cancer and mortality in Bangladesh and other South Asian countries [33]. Further research is needed to clarify barriers and facilitators of cancer screening in this population.

The present study highlights the need to disaggregate South Asian groups in research studies, and suggests the importance of collecting neighborhood level health data. Our data provides a snapshot of the new, fast growing, and

underserved South Asian immigrant community in the Bronx. Community based participatory research methods and principles offer a promising approach to address health disparities in South Asians in the United States.

Limitations

We relied on the knowledge of community members to locate our target respondents in neighborhoods known to have heavy concentrations of Bangladeshis. Many large scale survey studies use probability samples with the goal of ensuring a representative sample. Yet when response rates are low, as they often are in new immigrant communities, this also casts doubt on the validity of results. We believe our sampling method reflects a realistic tradeoff in this regard. Though the sample did not include more affluent Bangladeshi households living in other neighborhoods, the sample is likely to be representative of lower income, recent Bangladeshi communities.

New Contribution to the Literature

This study provides information about one of the newest and fastest growing immigrant groups in the United States for which almost no information exists. This study highlights the high burden of cardiovascular disease risk factors carried by Bangladeshi women in New York City. It also demonstrates the utility and efficacy of using community based participatory research approaches in accessing hard to reach communities.

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