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Sources of Health Information among Select Asian American Immigrant Groups in New York City

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Abstract

Health information can potentially mitigate adverse health outcomes among ethnic minority populations, but little research has examined how minorities access health information. The aim of this study was to examine variations in the use of health information sources among Asian American (AA) subgroups and to identify differences in characteristics associated with the use of these sources. We analyzed data from a foreign-born community sample of 219 Asian Indians, 216 Bangladeshis, 484 Chinese, and 464 Koreans living in New York City. Results found that use of health information sources varied by AA subgroup. Print media source use, which included newspapers, magazines and/or journals, was highest among Chinese (84%), Koreans (75%), and Bangladeshis (80%), while radio was most utilized by Chinese (48%) and Koreans (38%). Television utilization was highest among Bangladeshis (74%) and Koreans (64%). Koreans (52%) and Chinese (40%) were most likely to use the Internet to access health information. Radio use was best explained by older age and longer time lived in the US, while print media was more utilized by older individuals. Results also highlighted differences in native language versus non-native language media sources for health information by subgroup. Media sources can be used as a vehicle to disseminate health information among AAs.

Keywords

Asian American; Disparities; Health Sources; Health Information

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Background

In 2010, Asian Americans (AAs) made up 4.8% of the United States (US) population (U.S. Census Bureau, 2010), and had the fastest growth rate between 2000 and 2010 compared to other racial groups (U.S. Census Bureau, 2011, March). AAs make up 13.1% of the New York City (NYC) population (U.S. Census Bureau; American Community Survey, 2012), and NYC is the city with the largest AA population (U.S. Census Bureau, 2012, March). AA subgroups are tremendously diverse, comprised of individuals from over 20 nations. However, much of this diversity is not reflected in the literature, as data on AAs are often aggregated, masking important differences in health (Ghosh, 2003; Islam et al., 2010; Srinivasan & Guillermo, 2000). For instance, Chinese individuals are at higher risk for hepatitis B and South Asians are at a higher risk of diabetes compared to other AA groups (Centers for Disease Control and Prevention, 2006; Misra et al., 2010).

Health information seeking and information behavior is an important aspect of health management; communication theories such as the channel complementarity theory suggest that people are now using diverse and multiple information sources in the health information seeking process (Ruppel & Rains, 2012). Print media, radio, television, and Internet are important sources and channels of health information among ethnic minority populations that may be more accessible than interpersonal sources such as physicians, are often available in ethnic language, and may provide access to culturally tailored and relevant information, particularly for marginalized communities (Nguyen, Ashfaq, & Pham, 2010). The limited literature on health information sources and preferences among AAs suggests important racial and ethnic differences (Kakai, Maskarinec, Shumay, Tatsumura, & Tasaki, 2003; Nguyen & Bellamy, 2006; Oh, Kreps, Jun, Chong, & Ramsey, 2012; Shive et al., 2007), supporting analysis of health information by subgroups. In addition, ethnic media outlets can be an effective means of reaching out to AA populations (Jenkins et al., 1999; Jenkins et al., 1997).

Studies have shown that the English and ethnic language media health information sources vary significantly by AA subgroup, and the type and extent of their use also differs by ethnicity (Ferketich et al., 2004; Lee, 2010; Oh, Kreps, Jun, & Ramsey, 2011; Woodall et al., 2006). Previous research on health information sources has examined cancer information seeking behaviors of AAs, specifically among East Asian women (Nguyen, Shungu, et al., 2010; Oh et al., 2011; Todd & Hoffman-Goetz, 2011; Yi & Zahn, 2010), but little information exists on behaviors of other AA subgroups or different diseases or health issues relevant to AAs, such as hepatitis B or diabetes.

Among the few studies examining characteristics related to the use of particular health information sources among AAs, factors such as socioeconomic status, ethnicity, age, and gender are associated with particular media source use (Cotten & Gupta, 2004; Harris, Harris, & Davis, 1991; Kim & Kwon, 2010). Furthermore, in immigrant communities, individuals with limited English proficiency (LEP) may face significant challenges in terms of seeking and understanding health information (Vanderpool, Kornfeld, Rutten, & Squiers, 2009). Given the high rates of LEP among AAs (U.S. Census Bureau; American Community Survey, 2012), it is important to distinguish between native and English

language sources. To our knowledge, this paper is the first to present variations in the use of health information sources among Chinese, Korean, Asian Indian, and Bangladeshi immigrant communities in NYC, home to the largest AA population in the US. We report the top sources of health information in each of these diverse subgroups and examine differences in characteristics associated with use of various media sources both within and across these communities. Additionally, we examine factors associated with the use of native language health information sources among a subset of our sample.

Method

Data Sources

Study data is drawn from the formative stage of three community-based participatory research projects in NYC. Data for the Chinese and Korean samples was collected to inform the development of a hepatitis B social marketing campaign, data for the Bangladeshi sample was collected to inform the development of a diabetes management intervention, and data for the Asian Indian sample was collected to inform the development of a diabetes prevention intervention.

Although data collection methods varied, each study used purposive sampling strategies. Venue-based (at community organizations) and street intercept sampling were used to collect Chinese and Korean surveys. Asian Indians were purposively sampled at community health fairs and cultural events, and Bangladeshi individuals were purposively recruited from community events such as cultural gatherings, streets fairs, and health fairs. All individuals received a small incentive for participation. Survey instruments were translated into Chinese (Mandarin and Cantonese), Korean, Punjabi, and Bengali and interviewer-administered by trained bi-lingual surveyors.

Variables

Each survey contained similar questions assessing demographic and acculturation characteristics, health, and sources of health information, allowing for comparison across groups. Demographic variables included gender, age, years lived in the US, marital status, education, income, and health insurance. Because different response categories were used across surveys for income, two categories were created. For Asian Indian and Bangladeshi individuals, income was divided into < $25,000 and ≥ $25,000. For Chinese and Korean individuals, income was divided into < $20,000 and ≥ $20,000. In each group, missing income (refused or not sure/do not know) was large enough (>15%) to be included as a separate category. A variable assessing self-reported health was created using the question “How would you describe your general health?” Responses included excellent, good, fair, and poor. A language fluency variable to assess LEP was created following US Census guidelines and used the question “How well would you say you speak English?” Individuals speaking English “well,” “not well,” or “not at all”were considered to have LEP, while individuals speaking English “excellent” or “very well” were considered proficient in English (U.S. Census Bureau, 2003, October).

Health information source variables were created from questions assessing where individuals get information about their health; sources included print media (newspapers, magazines, books, and/or journals), radio, television, and Internet. Chinese and Korean print media included newspapers, magazines, and/or journals; Asian Indian print media included newspapers, magazines, books and/or journals; and Bangladeshi print media included newspapers. Among individuals using the health information sources, variables were also created to measure the language of each media type. Language was assessed for Koreans, Chinese, and Bangladeshi individuals, and the new variable compared native language use to any type of English use (English or English and native language use) among these subgroups. Health information language source was not assessed among the Asian Indian sample.

Statistical Analyses

Analyses were restricted to foreign-born individuals in each sample, yielding 219 Asian Indians, 216 Bangladeshis, 484 Chinese, and 464 Koreans. Descriptive analyses examined the distribution of demographic characteristics, health-related variables, language fluency, and health information media sources used across each group. Means and standard deviations (SDs) were calculated for continuous variables; totals and percentages were calculated for categorical variables. Missing values were excluded from analyses. Logistic regression was conducted within each subgroup to predict the use of each media type, regardless of language. Odds radios (ORs) and 95% confidence intervals (CIs) are reported, and statistically significant p-values ($p<0.05$) are indicated. Logistic regression was also conducted to predict the use of each media type in native language versus English and native language/English language among all individuals reporting use of the media source. For each subgroup and media type, logistic regression was performed only when the sample size was sufficient. All analyses were carried out with SPSS Version 19.0 (Chicago, IL).

Results

Descriptive Analysis

Table 1 presents demographic, health, and acculturation characteristics within each subgroup. The Asian Indian population had a higher percentage of men (78%) compared to the other samples, and the Chinese sample had the youngest mean age (37 years). Koreans and Bangladeshis reported higher education levels, and Koreans reported the highest income. Bangladeshis were most likely to have health insurance (81%). LEP ranged from 63% among Bangladeshis to 85 and 84%, respectively, among Chinese and Koreans.

Table 1 also presents media use as sources of health information within each subgroup. Chinese individuals were most likely to utilize print media (newspapers, magazines and/or journals) (84%), and 65% of Chinese individuals utilized these sources in their native language; among Chinese, Internet was the least utilized media source (40%). Korean individuals were most likely to utilize print media (newspapers, magazines and/or journals) (75%), while radio was the least utilized media source (38%). Bangladeshis were most likely to utilize print media (newspapers) and television (80% and 74% respectively), and radio

was the least utilized media source (9%). Asian Indians had the lowest use of media sources, and television was most utilized (37%).

Factors Associated with Health Information Media Sources

Table 2 presents adjusted predictors of health information media use for Chinese and Koreans. In terms of the Chinese population, older age is significantly related to the use of print media (newspapers, magazines and/or journals) and radio ($p<0.05$ and $p<0.01$, respectively), while younger age is significantly related to Internet use ($p<0.001$). Individuals who have lived in the US ≥ 10 years are significantly more likely to listen to the radio for health information ($p<0.01$). Insured individuals are significantly more likely to use print media (newspapers, magazines and/or journals), television, and Internet ($p<0.05$, $p<0.01$, and $p<0.05$, respectively). Individuals who are unmarried, have a college education or greater, and have a higher income are significantly more likely to use the Internet for health information ($p<0.05$), while individuals with higher English proficiency are more likely to get health information from the television ($p<0.01$).

Similar to Chinese individuals, age is a significant predictor across media types for Koreans (Table 2). Individuals who have lived in the US ≥ 10 years, with LEP, and a higher income are more significantly more likely to use the radio as a health information source ($p<0.01$, $p<0.05$, and $p<0.05$, respectively). Individuals who have lived in the US < 10 years, have college education or greater, and self-report excellent or good health are significantly more likely to use the Internet as a health information source ($p<0.001$, $p<0.01$, and $p<0.05$, respectively).

Table 3 presents adjusted predictors of health information media use for Bangladeshis and Asian Indians. Among Bangladeshis, radio as a health information source was too small to analyze, and no factors are significantly associated with newspapers. Bangladeshi females are more likely to use television as a health information source ($p<0.05$) and individuals with higher English proficiency, higher income, and excellent or good self-reported health are more likely to use the Internet as a health information source ($p<0.001$, $p<0.05$, and $p<0.05$, respectively).

Among Asian Indians, television as a health information source was too small to analyze, and no factors are significantly associated with print media (newspapers, magazines, books, and/or journals) or radio use as health information sources. Unmarried Asian Indians are more likely to use the Internet as a health information source ($p<0.05$).

Factors Associated with Sources of Native Language Health Information

Table 4 presents predictors of native language health information among Chinese, Korean, and Bangladeshi individuals who reported using each health information source. Chinese individuals with LEP and a high school education or less are significantly more likely to use all health information sources in their native language. Chinese individuals aged ≥ 55 years are more likely than younger individuals to use print media (newspapers, magazines and/or journals) in their native language ($p<0.05$) and females are less likely to use native language television ($p<0.01$). Chinese individuals who are male, have no health insurance, have lived

in the US < 10 years, and are married are more likely to use the Internet in their native language as a media source.

Among Koreans, LEP is also a significant predictor for all media types; individuals with LEP are 7.8 times more likely to use native language radio and 4.3 times more likely to use native language Internet compared to individuals high higher English fluency ($p<0.05$ and $p<0.01$, respectively). Koreans aged ≥ 55 years are more likely to use native language print media (newspapers, magazines and/or journals) and radio compared to younger individuals ($p<0.01$). Koreans with a high school education or less are more likely to use print media (newspapers, magazines and/or journals) and television in their native language ($p<0.001$ and $p<0.01$, respectively).

Among Bangladeshis, radio and Internet were too small to analyze and were excluded from analyses. Bangladeshis with LEP are significantly more likely than individuals with higher English fluency to use native language newspapers and television as health information sources ($p<0.001$, $p<0.05$). Individuals with a high school education or less are more likely to use native language television as a health information source ($p<0.05$). Additionally, individuals self-reporting fair or poor health are more likely to use native language newspapers as a health information source ($p<0.05$).

Discussion

Our findings reveal important differences and similarities in sources of health information across AA subgroups. Chinese and Koreans reported a high prevalence of using various print media sources such as newspapers, magazines, and journals for health information, while over half of Chinese, Indians, and Bangladeshis did not use the Internet for health information, consistent with previous findings (Clayman, Manganello, Viswanath, Hesse, & Arora, 2010; Nguyen & Bellamy, 2006; Oh et al., 2011; Woodall et al., 2009). Additionally, Bangladeshis were less likely than other subgroups to use any media source for health information. Further, we characterize important demographic and health characteristics associated with general use of each media source by subgroup. For example, overall radio use was more common among older individuals and those living in the US for longer, while unmarried individuals were more likely to use the Internet, especially Asian Indians and Chinese.

Some characteristics highlighted in our findings may be reflective of both the make-up of our samples as well as occupational trends within these subgroups. For example, in the Asian Indian population, male taxi drivers and construction workers were heavily represented. Similarly, in the Korean community, there were large concentrations of small-business owners (including dry cleaners, nail salon owners, and small grocers). Given the nature of these jobs, access to the radio may be more common and thus used more often as a source of health information among these subgroup samples.

Native language health information sources are becoming increasingly more accessible to immigrant populations, and our results show that utilizing these sources could be particularly effective for certain groups. Our findings, especially those regarding use of

native language Internet, represent a unique contribution to the literature and demonstrate that younger, less-acculturated, socio-demographically disadvantaged Chinese individuals are more likely to use Internet sites in native language as a source of health information. This may be indicative of the more wide-spread use of Internet globally. We suspect that immigrant populations are either learning about Internet use in their home countries and relying on Internet sources of health information accessed prior to migrating to the US, or they are using in-language versions of ethnic newspapers or common search engines like yahoo.com (Zhou & Cai, 2002).

These results also suggest that using media sources as a vehicle to disseminate health information for AAs is warranted. Over half of the AA populations reported using versions of print media and television as sources for health information. A previous study found that Korean Americans were more likely than native Koreans to trust health information from print media sources such as newspapers and magazines (Oh, Zhou, Kreps, & Kim, 2013). As such, these media sources can and should be utilized for promotion of health education programs and health services. Health-related social marketing campaigns utilizing these sources may also be beneficial in these communities. Such vehicles may potentially be leveraged to enhance recruitment and retention efforts for research studies, an area of emerging interest in the literature.

Our research confirms previous findings that programs utilizing media sources for health promotion and prevention should be tailored for specific AA subgroups, emphasizing the importance of data disaggregation by subgroup. For example, our results suggest that messages utilizing the Internet rather than the radio might aid in reaching younger AAs, while messages utilizing radio and newspaper or magazines might aid in reaching older Korean Americans. Our findings also highlight the importance of native language health information sources for Chinese, Korean, and Bangladeshi populations. While native language media sources are a viable way to disseminate health information, they must be targeted to the particular audience. For example, our results suggest that native language radio and print media sources such as newspapers and magazines may be a useful mode of disseminating health information for older Chinese and Korean populations with LEP, while Bangladeshi language newspapers and television may effectively reach individuals with LEP. Further, similar to previous research, our findings regarding the use of native language Internet sources in the Chinese and Korean communities suggest that the Internet be leveraged as a tool for targeting younger, recent immigrants with LEP.

Previous research has demonstrated that use of a health information source, whether in general or in native language, depends on ethnicity (Oh et al., 2011; Woodall et al., 2009; Woodall et al., 2006). Not only does use of media sources for health information differ across ethnicities, but subgroup analyses show important differences within ethnicities. These findings have multiple implications for research. First, future studies on health information preferences in AAs should collect granular data on subgroup ethnicities. Second, studies should consider distinctly assessing use of media sources in general as well as use of native language media sources for health information, particularly in immigrant or AA groups with LEP. To our knowledge, this is the first study that has examined differences in characteristics associated with health information sources in native language versus

factors associated with general use of these sources, representing an important contribution to the literature.

Limitations

Several limitations are worth noting. First, we only present results on media sources of health information and not on other types of health information sources, such as interpersonal communication with physicians or friends, which previous research has found to be a major source of health information (Kakai et al., 2003; Shive et al., 2007). Similarly, results are limited to whether or not an individual ever used media sources for health information, and do not speak to the extent and duration of use. Prior studies have reported on the degree of trust placed on various sources; this information was not collected. Purposive sampling strategies were used for each data source to inform future intervention efforts, and as such, recruitment efforts were sometimes tailored to reach specific populations, limiting the generalizability to all AA subgroups and limiting the ability to compare across groups. Our results should be contextualized within sampling strategies and sample characteristics, as data were collected as part of existing community based participatory research studies; sampling efforts were guided by partner organizations and their unique access to communities. For example, younger Chinese men from the Fujian province were purposively sampled to inform the development of a subsequent intervention for this subgroup. Our results should be contextualized within sampling strategies and sample characteristics, as data were collected as part of existing community based participatory research studies; sampling efforts were guided by partner organizations and their unique access to communities. Further, questions assessing use of health information media sources had slight variations across samples. For example, because use of native language sources was not assessed for Asian Indians, our findings do not provide information on the potential benefit of using native language sources for this subgroup. However, given that Asian Indians reported high LEP and based on findings from other subgroups, we can surmise that use of media sources of health information in language for this group is likely high as well. Finally, it is important to consider that native language media may be greater available in NYC as compared to other areas, given the large AA population in NYC, limiting the generalizability of our results to other settings.

Conclusions

Given the lack of information about health information sources among different AA subgroups, our results fill an important gap in the literature. Further, our study reports findings on the three largest AA subgroups in NYC (Chinese, Korean, and Asian Indians), as well as the fastest growing subgroup (Bangladeshis). Few studies have the ability to compare both within and across AA subgroups, and these data are a powerful tool in developing and tailoring health education and health intervention studies for AAs. Future research directions include comparing characteristics of native versus English language sources of health information, examining trusted sources of health information, looking at predictors of use within each subgroup, and determining the potential impact of particular information sources on health outcomes.

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Table 1

Frequencies by Asian American subgroup, N (%)

	Bangladeshi, n=216	Asian Indian n=219	Chinese n=484	Korean n=464
Age, Mean (SD)	45.6 (11.4)	48.9 (11.4)	36.7 (15.2)	45.6 (15.1)
Years in the U.S., Mean (SD)	12.3 (8.9)	12.4 (9.8)	10.1 (8.7)	15.5 (9.8)
Female gender	97 (45.1)	47 (21.7)	211 (43.6)	220 (47.6)
Married/Living with partner	193 (89.4)	188 (86.2)	244 (50.5)	330 (71.4)
≤ High school education	72 (33.3)	135 (62.8)	396 (82.3)	128 (27.9)
Income				
< 25k	74 (34.3)	94 (42.9)	*na*	*na*
≥ 25k	67 (31.0)	52 (23.7)	*na*	*na*
Not sure/Missing/Refused	75 (34.7)	73 (33.3)	131 (27.1)	86 (18.5)
< 20k	*na*	*na*	208 (43.0)	57 (12.3)
≥ 20k	*na*	*na*	145 (30.0)	321 (69.2)
Has health insurance	175 (81.0)	69 (33.0)	287 (59.5)	308 (67.5)
Fair/Poor Self-Reported Health	85 (39.9)	91 (42.9)	155 (33.0)	260 (57.9)
English Fluency				
Fluently/Very well	66 (30.7)	55 (25.9)	73 (15.2)	71 (15.8)
Well/Not Well/Not at all (LEP)	149 (63.3)	157 (74.1)	407 (84.8)	377 (84.2)
Print Media as Health Information[a]				
Native use only	89 (41.2)	*na*	315 (65.1)	210 (45.3)
English and English/Native use	83 (38.4)	*na*	91 (18.8)	138 (29.7)
No use	44 (20.4)	150 (68.5)	78 (16.1)	116 (25.0)
Radio as Health Information				
Native use only	6 (2.8)	*na*	206 (42.6)	146 (31.5)
English and English/Native use	12 (5.5)	*na*	28 (5.8)	31 (6.7)
No use	198 (91.7)	181 (82.6)	250 (51.6)	287 (61.8)
Television as Health Information				
Native use only	64 (29.6)	*na*	178 (36.8)	145 (31.2)
English and English/Native use	96 (44.5)	*na*	109 (22.5)	153 (33.0)
No use	56 (25.9)	139 (63.5)	197 (40.7)	166 (35.8)
Internet as Health Information				
Native use only	13 (6.0)	*na*	126 (26.0)	141 (30.4)
English and English/Native use	55 (25.5)	*na*	69 (14.3)	101 (21.8)
No use	148 (68.5)	178 (81.3)	289 (59.7)	222 (47.8)

[a]Chinese and Korean print media includes newspapers, magazines, and/or journals; Asian Indian print media includes newspapers, magazines, books and/or journals; and Bangladeshi print media includes newspapers

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Table 2

Predicting media type, Chinese and Korean[d]

	Chinese (n=451)				Korean (n=403)			
	Print Media[e]	Radio	Television	Internet	Print Media[e]	Radio	Television	Internet
	OR (95% CI)	OR (95% CI)	OR (95% CI)	OR (95% CI)	OR (95% CI)	OR (95% CI)	OR (95% CI)	OR (95% CI)
Gender (Male)								
Female	1.5 (0.8-2.7)	1.2 (0.8-1.9)	1.9 (1.2-2.9)[b]	0.8 (0.5-1.3)	1.3 (0.8-2.1)	0.7 (0.4-1.1)	1.2 (0.8-1.9)	0.8 (0.5-1.3)
Age (18-44)								
45-54	4.5 (1.0-20.2)[a]	3.4 (1.6-6.9)[b]	1.1 (0.6-2.2)	0.5 (0.2-1.0)	2.0 (1.0-4.1)	1.5 (0.8-2.6)	1.0 (0.6-1.8)	0.8 (0.4-1.4)
55+	2.3 (0.8-6.5)	3.2 (1.7-6.2)[c]	0.8 (0.4-1.5)	0.2 (0.1-0.4)[c]	2.8 (1.3-5.8)[b]	3.2 (1.7-5.8)[c]	3.8 (1.9-7.8)[c]	0.3 (0.2-0.6)[c]
Insurance (Insured)								
Uninsured	0.5 (0.3-0.9)[a]	0.7 (0.4-1.0)	0.6 (0.4-0.9)[b]	0.6 (0.4-1.0)[a]	1.1 (0.6-1.8)	1.0 (0.6-1.7)	0.9 (0.6-1.4)	0.8 (0.5-1.3)
Years in U.S. (<10 years)								
≥10 years	1.1 (0.6-2.1)	2.2 (1.4-3.5)[b]	1.2 (0.8-1.8)	0.6 (0.4-1.0)	1.5 (0.8-2.6)	2.2 (1.2-4.0)[b]	1.3 (0.8-2.3)	0.3 (0.2-0.6)[c]
Education (≤ High school)								
≥ College	0.7 (0.3-1.5)	0.8 (0.5-1.5)	1.4 (0.8-2.6)	2.8 (1.6-5.0)[c]	1.1 (0.6-2.0)	0.8 (0.5-1.3)	0.9 (0.5-1.6)	2.4 (1.4-4.0)[b]
English Fluency (≥Very well)								
≤Well	0.4 (0.2-1.1)	1.8 (0.9-3.4)	0.4 (0.2-0.8)[b]	0.5 (0.3-1.0)	0.7 (0.4-1.5)	2.3 (1.1-4.8)[a]	1.1 (0.5-2.1)	0.6 (0.3-1.2)
Income (≥ 20k)								
Do not know	1.0 (0.5-2.1)	1.6 (0.9-2.8)	1.3 (0.7-2.2)	0.7 (0.4-1.3)	0.8 (0.4-1.5)	0.8 (0.4-1.5)	0.7 (0.4-1.3)	0.8 (0.4-1.5)
< 20k	1.1 (0.5-2.1)	1.1 (0.6-1.8)	1.4 (0.8-2.2)	0.5 (0.3-0.9)[a]	0.8 (0.3-1.7)	0.5 (0.2-1.0)[a]	0.9 (0.4-1.9)	1.1 (0.5-2.3)
Marital Status (Not married)								
Married	1.4 (0.8-2.5)	1.4 (0.9-2.2)	1.3 (0.8-2.1)	0.6 (0.4-0.9)[a]	1.4 (0.8-2.4)	1.4 (0.8-2.5)	1.1 (0.6-1.9)	1.1 (0.6-2.0)
Self-Reported Health (Fair/Poor)								
Excellent/Good	0.8 (0.5-1.5)	1.1 (0.7-1.7)	1.0 (0.6-1.5)	1.4 (0.8-2.2)	0.9 (0.5-1.5)	1.1 (0.7-1.7)	0.9 (0.6-1.4)	1.7 (1.1-2.7)[a]

[a] $p<0.05$

[b] $p<0.05$

[c] $p<0.05$

[d] Reference groups in parentheses

[e] Print media includes newspapers, magazines, and/or journals

Table 3

Predicting media type, Bangladeshi and Asian Indian

	Bangladeshi (n=184)			Asian Indian (n=193)		
	Newspapers	Television	Internet	Print Media[e]	Radio	Internet
	OR (95% CI)	OR (95% CI)	OR (95% CI)	OR (95% CI)	OR (95% CI)	OR (95% CI)
Gender (Male)						
Female	0.7 (0.3-1.6)	2.7 (1.2-5.9)[a]	0.7 (0.3-1.6)	1.4 (0.7-3.1)	0.4 (0.1-1.3)	1.1 (0.4-2.9)
Age (18-44)						
45-54	0.7 (0.3-1.8)	1.2 (0.5-2.7)	0.6 (0.3-1.5)	1.0 (0.5-2.3)	0.8 (0.3-2.3)	0.7 (0.2-1.7)
55+	0.7 (0.3-2.8)	1.8 (0.7-4.9)	0.7 (0.3-2.0)	0.9 (0.4-2.0)	0.8 (0.3-2.2)	0.4 (0.1-1.1)
Insurance (Insured)						
Uninsured	2.1 (0.6-6.6)	1.3 (0.5-3.3)	1.3 (0.5-3.2)	1.1 (0.6-2.3)	0.6 (0.3-1.5)	0.7 (0.3-1.6)
Years in the U.S. (<10 years)						
≥ 10 years	0.8 (0.3-1.7)	1.2 (0.5-2.5)	1.6 (0.7-3.7)	1.6 (0.8-3.2)	1.3 (0.6-3.1)	0.9 (0.4-2.2)
Education (≤ High school)						
≥ College	1.8 (0.7-4.4)	1.4 (0.6-3.2)	1.4 (0.5-3.7)	1.1 (0.5-2.2)	0.6 (0.2-1.4)	2.0 (0.9-4.8)
English Fluency (≥Very well)						
≤ Well	0.8 (0.3-2.1)	0.7 (0.3-1.5)	0.1 (0.1-0.3)[c]	0.7 (0.3-1.4)	0.5 (0.2-1.2)	0.6 (0.3-1.6)
Income (≥ 25k)						
Do not know	0.7 (0.2-1.9)	1.5 (0.6-4.2)	1.4 (0.6-3.8)	1.3 (0.5-3.1)	2.9 (0.8-9.7)	2.5 (0.8-7.9)
< 25k	0.5 (0.2-1.5)	0.6 (0.3-1.5)	0.3 (0.1-0.9)[a]	1.0 (0.4-2.4)	2.8 (0.9-9.2)	2.3 (0.7-7.1)
Marital Status (Not married)						
Married	0.2 (0.03-1.6)	0.7 (0.2-2.6)	1.3 (0.4-4.4)	0.7 (0.3-1.6)	0.8 (0.3-2.7)	0.3 (0.1-0.8)[a]
Self-Reported Health (Fair/Poor)						
Excellent/Good	0.7 (0.3-1.8)	1.2 (0.6-2.8)	2.5 (1.0-6.0)[a]	1.5 (0.7-2.8)	1.2 (0.5-2.7)	0.8 (0.4-1.9)

[b] $p<0.01$

[d] Reference groups in parentheses

[a] $p<0.05$

[c]p<0.001

[e]Print media includes newspapers, magazines, books and/or journals

Table 4

Predicting native language media type, Chinese, Korean, and Bangladeshi[d]

	Chinese				Korean				Bangladeshi	
	Print Media[e] (n=378)	Radio (n=218)	Television (n=268)	Internet (n=180)	Print Media[e] (n=303)	Radio (n=155)	Television (n=264)	Internet (n=217)	Newspapers (n=146)	Television (n=136)
	OR (95% CI)	OR (95% CI)	OR (95% CI)	OR (95% CI)	OR (95% CI)	OR (95% CI)	OR (95% CI)	OR (95% CI)	OR (95% CI)	OR (95% CI)
Gender (male)										
Female	0.6 (0.3-1.1)	2.7 (0.9-7.9)	0.4 (0.2-0.8)[b]	0.2 (0.1-0.5)[b]	1.7 (1.0-3.0)	1.3 (0.5-3.4)	1.1 (0.6-1.8)	1.6 (0.8-2.9)	0.7 (0.3-1.6)	1.9 (0.9-1.3)
Age (18-44)										
45-54	1.6 (0.6-4.1)	2.6 (0.4-16.1)	0.6 (0.3-1.5)	0.9 (0.2-5.2)	1.6 (0.8-3.3)	4.6 (1.2-17.4)[a]	1.3 (0.6-2.7)	2.2 (0.9-5.1)	0.8 (0.3-2.2)	1.1 (0.4-2.9)
55+	3.0 (1.2-7.7)[a]	0.6 (0.2-2.3)	0.9 (0.4-2.0)	2.2 (0.3-18.3)	3.9 (1.7-8.3)[b]	5.5 (1.5-19.9)[b]	1.6 (0.8-3.3)[c]	2.3 (0.9-6.3)	1.1 (0.4-3.1)	2.1 (0.8-6.1)
Insurance (insured)										
Uninsured	1.6 (0.8-3.2)	3.0 (0.7-12.8)	0.9 (0.5-1.8)	3.2 (1.2-8.5)[a]	1.2 (0.7-2.2)	1.4 (0.5-3.9)	0.9 (0.5-1.6)	1.7 (0.9-3.3)	0.9 (0.3-2.2)	0.9 (0.4-2.5)
Years in the U.S. (<10 years)										
≥10 years	0.8 (0.4-1.6)	0.4 (0.1-1.1)	0.7 (0.4-1.4)	0.2 (0.1-0.6)[b]	1.1 (0.5-2.2)	1.5 (0.4-5.5)	1.1 (0.5-2.2)	0.6 (0.3-1.2)	0.6 (0.2-1.3)	0.7 (0.3-1.6)
Education (≤ High school)										
≥ College	0.3 (0.1-0.5)[c]	0.2 (0.1-0.7)[a]	0.2 (0.1-0.4)[c]	0.3 (0.1-0.8)[a]	0.2 (0.1-0.4)[c]	1.1 (0.4-3.2)	0.4 (0.2-0.7)[b]	0.6 (0.3-1.5)	0.5 (0.2-1.2)	0.4 (0.1-1.0)[a]
English Fluency (≥Very well)										
≤Well	12.1 (5.7-25.8)[c]	5.5 (1.6-19.0)[b]	6.4 (2.8-14.6)[c]	10.2 (3.2-32.2)[c]	7.4 (2.7-19.8)[c]	7.8 (1.6-39.3)[a]	3.3 (1.3-8.5)[a]	4.3 (1.9-10.0)[b]	7.3 (2.7-19.7)[c]	3.3 (1.3-8.7)[a]
Income (≥ 20k/≥ 25k)										
Do not know	1.7 (0.8-4.0)	3.0 (0.7-12.5)	1.6 (0.7-3.5)	0.4 (0.1-1.4)	1.3 (0.5-3.3)	3.8 (0.4-40.4)	0.9 (0.4-2.0)	1.0 (0.4-2.5)	0.4 (0.1-1.1)	0.4 (0.1-1.2)
<20k/<25k	0.9 (0.4-1.9)	1.0 (0.3-3.0)	1.9 (0.9-3.9)	0.7 (0.2-2.4)	1.0 (0.4-2.5)	0.8 (0.1-1.9)	0.9 (0.4-2.1)	1.4 (0.5-4.1)	0.8 (0.3-2.2)	1.1 (0.4-3.1)
Marital Status (Not married)										
Married	1.2 (0.6-2.4)	2.0 (0.6-6.4)	1.6 (0.8-3.2)	6.0 (1.9-18.9)[b]	1.4 (0.7-3.0)	0.3 (0.1-1.8)	1.0 (0.5-2.1)	1.1 (0.5-2.5)	1.7 (0.5-5.7)	0.9 (0.2-3.2)

	Chinese				Korean				Bangladeshi	
	Print Media[e] (n=378)	Radio (n=218)	Television (n=268)	Internet (n=180)	Print Media[e] (n=303)	Radio (n=155)	Television (n=264)	Internet (n=217)	Newspapers (n=146)	Television (n=136)
	OR (95% CI)	OR (95% CI)	OR (95% CI)	OR (95% CI)	OR (95% CI)	OR (95% CI)	OR (95% CI)	OR (95% CI)	OR (95% CI)	OR (95% CI)
Self-Reported Health (Fair/Poor)										
Excellent/Good	0.6 (0.3-1.3)	0.9 (0.3-2.8)	1.1 (0.6-2.2)	1.3 (0.4-3.7)	1.2 (0.7-2.2)	1.9 (0.6-5.7)	0.9 (0.5-1.6)	1.6 (0.8-3.0)	0.3 (0.1-0.9)[a]	0.3 (0.2-1.3)

[a] p<0.05

[b] p<0.01

[c] p<0.001

[d] Reference groups in parentheses

[e] Print media includes newspapers, magazines, and/or journals