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Electronic Communication Channel Use and Health Information Source Preferences Among Latinos in Northern Manhattan

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Abstract

Understanding key health concepts is crucial to participation in Precision Medicine initiatives. In order to assess methods to develop and disseminate a curriculum to educate community members in Northern Manhattan about Precision Medicine, clients from a local community-based organization were interviewed during 2014–2015. Health literacy, acculturation, use of Internet, email, and text messaging, and health information sources were assessed. Associations between age and outcomes were evaluated; multivariable analysis used to examine the relationship between participant characteristics and sources of health information. Of 497 interviewed, 29.4% had inadequate health literacy and 53.6% had access to the Internet, 43.9% to email, and 45.3% to text messaging. Having adequate health literacy was associated with seeking information from a healthcare professional (OR 2.59, 95% CI 1.54–4.35) and from the Internet (OR 3.15, 95% CI 1.97–5.04); having ≤ grade school education (OR 2.61, 95% CI 1.32–5.17) also preferred information from their provider; persons >45 years (OR 0.29, 95% CI 0.18–0.47) were less likely to use the Internet for health information and preferred printed media (OR 1.64, 95% CI 1.07–2.50). Overall, electronic communication channel use was low and varied significantly by age with those ≤45 years more likely to utilize electronic channels. Preferred sources of health information also varied by age as well as by health literacy and educational level. This study demonstrates that to effectively communicate key Precision Medicine concepts, curriculum development for Latino

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Compliance with Ethical Standards

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community members of Northern Manhattan will require attention to health literacy, language preference and acculturation and incorporate more traditional communication channels for older community members.

Keywords

Health education; Community education; Health communication; Precision medicine; Genetics; Cancer

Background

Access to and understanding of relevant health information has a significant bearing on an individual's ability to obtain healthcare which ultimately results in better health outcomes and overall quality of life [1]. Being health literate, that is, having the "capacity to obtain, communicate, process, and understand basic health information and services" [2] assists patients in making informed, appropriate, and proactive healthcare decisions that range from adopting healthy lifestyle choices and engaging in preventive health behaviors to selecting preferred medical treatment. Access to health information and having adequate health literacy is particularly relevant to cancer prevention, diagnosis, and treatment, areas that are now the focus of a national personalized medicine initiative [3].

In his 2016 State of the Union Address, President Barack Obama announced his plans to launch the Precision Medicine Initiative; a plan that will ultimately provide patients with the personalized information needed to stay healthy [4]. Precision medicine (PM) is an emerging approach to disease treatment and prevention that takes into account individual genetic variability, lifestyle choices, and environmental exposures [3]. To provide informed consent to participate in PM research and to make informed health-related decisions that involve PM, patients are required to understand unfamiliar and complex scientific information [5, 6]. While ushering in a new era in the detection, diagnosis and treatment of cancer, the introduction of PM into oncology also presents the real potential for widening the health disparities gap among disadvantaged populations with low educational levels, inadequate health literacy, and poor English proficiency; individuals for whom PM concepts will be difficult to grasp without targeted education and support [7].

Deficits in literacy and underutilization of medical services have been linked to health disparities [8], especially among Hispanic populations and poor health literacy [9] may be an important factor underlying less favorable health outcomes and limited healthcare access among Latinos [10]. Little is known about health literacy levels, the health information seeking behaviors, and media and technology preferences with regard to health information among Hispanics in our Northern Manhattan community. As part of a larger project to educate community members in Northern Manhattan about precision medicine and cancer, the Community and Ambulatory Recruitment and Enrollment (CARE) shared resource of the Herbert Irving Comprehensive Cancer Center conducted a formative evaluation in collaboration with our community partner, the Northern Manhattan Improvement Corporation. Our goals for this study included assessing the information needs of our community with regard to cancer and cancer prevention, evaluating electronic

communication channels by which to receive health and cancer-related information, and examining preferred sources of cancer-related information.

Methods

Setting

Northern Manhattan, comprised of the Washington Heights and Inwood neighborhoods, is roughly 3 square miles in area and home to approximately 200,000 individuals [11]. The population of this section of Manhattan is characterized as predominantly Hispanic (71%) and economically disadvantaged population with 31% living below the federal poverty level [11]. The Northern Manhattan Improvement Corporation (NIMC), located in Washington Heights, is a community-based organization that provides a broad range of legal, social, and community development services to a rapidly growing low-income and immigrant community in Northern Manhattan.

Participants and Interview

Using an observational study design, we recruited adults aged 18 years and older who were English and/or Spanish-speaking and seeking social and legal services and adult education at NMIC, our community partner, between August 2014 and June 2015. A survey written at a grade school literacy level, approximately 15 min in duration, was administered on site by bilingual CARE recruiters in the preferred language of the participant (English or Spanish) after obtaining verbal informed consent.

Health Literacy, Acculturation and Covariates of Interest

To inform our assessment of health information seeking behavior, a single item health literacy screener [12] “How often do you need to have someone help you when you read instructions, pamphlets, or other written material from your doctor or pharmacy?” [2]. Possible responses included 1 =*never,* 2 = *rarely,* 3 = *sometimes,* 4 = *often,* and *5* = *always* was administered.

Demographic characteristics including gender, age, number of years of education and highest level of educational attainment, marital status, and health insurance coverage were gathered. Also collected was information on nativity, country of birth, and number of years of residence in the U.S. Level of acculturation was measured using an adapted version of the validated instrument developed by Marin and Gamba [13]. Participants were queried about English and Spanish language preferences for speaking, speaking with friends, thinking, watching television and listening to the radio and music. Responses were coded on a scale of 1 = *almost never* to 4 = *almost always.*

Primary Outcome Variables

Questions related to the Internet included the use of the Internet to access email, purpose and frequency of internet use, devices used (desktop/laptop computer, and wireless tablet) and sources used to access the Internet (home, work, school, and public library). To assess the availability and capability of cell phones in the community, participants were asked if they had a cell phone and if they were able to send and receive emails and text messages on their

cell phone. Additional questions probed to determine if the cell phone was supplied through their medical insurance provider ("Obamacare phone"), if the participant knew how to send or receive text messages on their cell phone, if they used their cell phone for text messaging, and whether or not they had unlimited text message capability on their cell phone. Use of social media and applications (Facebook, Twitter, and WhatsApp) was also determined. Using a single item adapted from the Health Information National Trends Survey [14], participants were asked about their sources of health information which included print media (books, pamphlets, brochures, newspaper or magazines), peers (family and friends), health professionals (doctors, other healthcare providers, hospital or clinic), broadcast media (television and radio), and the Internet.

Data Analysis

Descriptive analyses were performed including frequency distributions, means, and standard deviations. Modest but significant correlations between age, health literacy, and level of U.S. acculturation were found, with older participants having inadequate health literacy and low U.S. acculturation; age stratified comparisons are therefore presented here. Using univariate analyses (Chi square test for categorical and Student's *t* test for continuous variables), we examined the relationship between age dichotomized as ≤45 vs. >45 years and survey language preference (English vs. Spanish) and study outcomes. Health literacy was scored as "adequate" if participants responded that they "never" or "rarely" required assistance reading health-related materials and "inadequate" if they "sometimes, often or always" required assistance [12]. For the measure of acculturation, the mean score was calculated for the English and Spanish subscales. Individuals scoring ≥2.5 on the English subscale were coded as "high US acculturation" and ≥2.5 on the Spanish subscale as "high Spanish acculturation" [13]. Multivariable logistic regression was used to assess predictors of the use of the Internet and healthcare professionals as sources of health information. All procedures were approved by the Columbia University Medical Center Institutional Review Board. Analyses were conducted using IBM SPSS (version 22) and p-values ≤ 0.05 were considered statistically significant.

Results

A total of 497 community members accessing services at NMIC completed the survey (Table 1). The majority of community member surveys were conducted in Spanish (83.5 %) and 29.4 % had inadequate health literacy reporting that they sometimes, often or always need help to read medical information provided by a doctor or pharmacy. Most of those who completed a survey were female (68.2 %) with a mean age of 48.4 years [SD 16.2], and had a high school or less education (70.5%). A large proportion of participants were foreign-born (84.5 %)–78.1 % of whom were born in the Dominican Republic. On average, foreign-born individuals had a low level of English acculturation (mean 1.78, SD 0.76) and high Spanish acculturation (mean 3.51, SD 0.59). Older participants (>45 vs. ≤45 years) comprised 63.1% of our study population and more often completed the survey in Spanish and had inadequate health literacy ($p< 0.0001$) compared to younger participants. Those >45 years of age also more often had grade school or less education, were foreign-born, and had lower English acculturation (mean 1.63 [SD 0.64] vs. mean 2.09 [SD 0.89], $p<0.0001$) and

higher Spanish acculturation (mean 3.58 [SD 0.53] vs. mean 3.38 [SD 0.68], $p = 0.002$) compared to individuals ≤45 years of age.

More than half of study participants reported that they used the Internet and 28.4% did so on a daily basis (Table 2). Most frequently the Internet was accessed using a cell phone (37.8 %) followed by a desktop or laptop computer (31.0 %). Nearly all participants reported having a cell phone (93.0%). While less than half could receive emails on their mobile device, 72.6% could receive text messages and 66.2 % knew how to send or receive text messages. Use of social media was low; Facebook was the most commonly used social media with 42.9% of participants stating that they had a Facebook account.

About 85 % of younger (≤45 years) participants reported using the Internet compared to only 35.5% of older participants ($p<0.0001$) (Table 2). Little more than half of the younger group accessed the web on a daily basis vs. 14.4% for the older group ($p = 0.002$) and three-quarters of younger vs. about one-quarter of older participants used the Internet for email ($p = 0.015$). Younger participants much more often used their cell phone for Internet access (71.6 vs. 18.2%, $p<0.0001$) compared to older participants. Younger and older participants were equally likely to have a cell phone with the older group more likely to have received their cell phone through their insurance provider (28.8 vs. 13.7%, $p<0.0001$). Further, the younger group much more often used their phone for email (69.9 vs. 26.8 %, $p < 0.0001$), to send/receive text messages (90.7 vs. 52.1%, $p < 0.0001$), and to have unlimited text messaging plans (80.3 vs. 43.8%, $p < 0.0001$) than the older group. Lastly, the younger group also more often used Facebook (74.9 vs, 24.3 %, $p < 0.0001$).

Overall, health professionals (doctors, other healthcare provider, hospital, and clinic) were the most commonly reported sources of health information (79.5%), particularly among the >45 year group (83.9 vs. 72.3% younger, $p = 0.002$) (Table 3). The Internet was the second most frequently used source of health information (53.0%), followed by print media (books, pamphlets, brochures, newspapers, and magazines) (42.6%). Older individuals also reported high reliance on printed material ($p = 0.02$) and their community center for health information ($p = 0.05$) whereas the younger group preferred to use the Internet (74.3 vs. 40.5%, $p < 0.0001$). When accessing the Internet for health-related information, nearly all of the younger participants sought the information themselves as opposed to only half of the older group ($p < 0.0001$).

Individuals with adequate health literacy were more likely to seek health information from a healthcare professional (odds ratio (OR) = 2.59, 95% confidence interval (CI) 1.54–4.35) or from the Internet (OR 3.15, 95% CI 1.97–5.04) as did those with grade school or less education (OR = 2.61, 95% CI 1.32–5.17) and those with medical health insurance (OR = 2.54, 95% CI 1.37–4.71). Older individuals (OR 0.29, 95 % CI 0.18–0.47), and those with less than a high school education were less likely to use the Internet as a health information source, whereas, married individuals were more likely (OR 2.08, 95% CI 1.32–3.26). Older persons were also more likely to use printed media (OR 1.64, 95% CI 1.07–2.50) to access health information.

Discussion

Our findings demonstrate that, among Hispanic community members seeking services at a large community-based organization in Northern Manhattan, use of electronic channels of communication is low with 53.6% reporting access to the Internet, 43.9% using the Internet for email and, while the majority (93 %) had a cell phone, only 45.3 % use it to send or receive text messages. Our findings also show that preference for electronic communication channels varied by participant age; for example Internet use was highest among younger participants, at about 85%, compared to 35% of older individuals. Preferred sources of health information were also defined by the age and other characteristics of the participant. Those having adequate vs. inadequate health literacy were more likely to consult a healthcare professional or the Internet; older individuals had a clear preference for printed materials compared to younger participants; and as educational level decreased, the likelihood of consulting a healthcare professional increased.

According to the Health Information National Trends Survey (HINTS) [14, 15], an estimated 82.8% of U.S. population reported going online to use the Internet or to send and/or receive email in 2014. While national data trends indicate that the digital divide in Internet use by ethnic group (Hispanic vs. non-Hispanic) and age is narrowing, disparities in use still exist especially among low income and Hispanic populations [16, 17]. We found that just over one-half of our Hispanic community members report access to the Internet compared to 66% of self-reported Hispanics (Mexican, Puerto Rican, Cuban, and other Hispanic sub-groups) at the national level. The same gap is evident by age as well, with roughly one-third of older study participants using the Internet vs. 49.6% of HINTS participants aged 45+ years.

Regarding sources of health information, our findings are consistent with those of others in that, overall, the most common source of health information is the healthcare professional, followed by print materials, friends and family, and broadcast media [14, 18]. Although Hispanics are less likely than non-Hispanic whites to access health information through the Internet [1], we found health information seeking on the Internet in our group of Hispanic community members varies by age and that younger Hispanic individuals were as likely to consult the Internet as they were to use their healthcare professional (74.3 vs. 72.3 %, respectively). The older community members in our study more often preferred to speak to their doctor (83.9%) or to use print media (46.5%) rather than go online (40.5%). The differences in strategies when seeking information about health [18–20] among our community population most likely originates with particular and personal informational needs and motives [19, 21] that differ by age.

The WICER (Washington Heights/Inwood Informatics Infrastructure for Community-Centered Comparative Effectiveness Research) project, a household survey of Hispanics in Northern Manhattan conducted in 2011–2012, found health information seeking behaviors using the Internet to be 7.8 % [22]. In the current study, the preference for using the Internet to find health information was 53.6%, a sharp increase over the past several years in the same community. Similar to WICER, we found an association between level of education and likelihood of seeking health information on the Internet but beyond that, our data shows

that those with adequate health literacy were three times as likely to go online for health information compared to those with inadequate health literacy and that health information seeking on the Internet was related to age (younger vs. older), associations not previously reported among residents of this area.

This study provided our research team with information about communication channel utilization and health information source preferences among a predominantly Dominican cohort of community members in Northern Manhattan. Knowledge learned from this study identified several key factors associated with health information seeking behaviors that will inform the development and delivery of a population-directed curriculum to educate our community members about Precision Medicine. Strengths of this study include a large sample size, data collection in the language preferred by the study participant, use of low literacy study materials, and evaluation of relevant covariates including health literacy and acculturation level. As with any study, ours has certain limitations. This study was cross-sectional in design. Recruitment occurred at a single community-based organization in Northern Manhattan and may not be representative of all Northern Manhattan residents and our findings may not be generalized to other Hispanic subpopulations in other areas of the country. It is possible that other, unmeasured factors contribute to communication channel use and health information source preferences, thus biasing our findings in some way. Despite these limitations, the results of this study provided insight to communicating with our community members and fostering community relationships.

Access to health information is lowest among society's most vulnerable population groups [1]. For Precision Medicine initiatives (research and clinical) to succeed, it is crucial to identify patient's informational needs and preferred sources of information in order to guide healthcare professionals in presenting pertinent health information in a manner that is consonant with the information and health needs of their patients. Our study demonstrates that, in order to effectively communicate key Precision Medicine concepts and to educate our community about this rapidly developing area, curriculum development for Hispanic community members of Northern Manhattan will require attention to health and general literacy, language preference, and acculturation, as well as the selection of curriculum delivery channels appropriate to the age and technological resources of the individual.

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Table 1

Sociodemographic, nativity, and acculturation by age category (≤45 vs. >45 years) of the Northern Manhattan Improvement Corporation client population (n = 497), August, 2014 through June, 2015

	Total	Age		*p* value
	N (%) 497	Age ≤45 years N (%) 183 (36.9)	Age >45 years N (%) 313 (63.1)	
Sociodemographics				
Survey language				<0.0001
Spanish	415 (83.5)	128 (69.9)	286 (91.4)	
English	82 (16.5)	55 (30.1)	27 (8.6)	
Health literacy[a]				<0.0001
Adequate	350 (70.6)	150 (82.0)	199 (63.8)	
Inadequate	146 (29.4)	33 (18.0)	113 (36.2)	
Gender				0.16
Male	157 (31.8)	65 (35.7)	92 (29.6)	
Female	337 (68.2)	117 (64.3)	219 (70.4)	
Age (years), mean [SD]	48.4 [16.2]	32.9 [7.3]	60.6 [9.4]	<0.0001
Age (years)				<0.0001
18–25	28 (5.6)	28 (15.3)	0 (0.0)	
26–35	80 (16.1)	80 (43.7)	0 (0.0)	
36–45	75 (15.1)	75 (41.0)	0 (0.0)	
46–55	102 (20.6)	0 (0.0)	102 (32.6)	
56–65	116 (23.4)	0 (0.0)	116 (37.1)	
>65	95 (19.2)	0 (0.0)	95 (30.4)	
Education (years), mean [SD]	11.3 [3.7]	12.1 [3.6]	10.6 [3.8]	0.001
Education				<0.0001
≤Grade school	141 (28.4)	26 (14.3)	115 (36.7)	
High school	209 (42.1)	78 (42.9)	131 (41.9)	
>High school	145 (29.4)	78 (42.9)	67 (21.4)	
Marital status				0.008
Married/living as married	178 (35.9)	52 (28.4)	126 (40.3)	
Not married	318 (64.1)	131 (71.6)	187 (59.7)	
Health insurance				<0.0001
Yes	437 (87.9)	137 (74.9)	299 (95.5)	
No	60 (12.1)	46 (25.1)	14 (4.5)	
Type of health insurance[b]				<0.0001
Private insurance	41 (8.4)	15 (8.3)	26 (8.4)	
Medicaid	266 (54.2)	109 (60.6)	156 (50.3)	
Medicare	43 (8.8)	9 (5.0)	34 (11.0)	
Medicare/medicaid	83 (16.9)	1 (0.6)	82 (26.5)	
Self pay/uninsured	58 (11.8)	46 (25.6)	12 (3.9)	

	Total	Age		*p* value
	N (%) 497	Age ≤45 years N (%) 183 (36.9)	Age >45 years N (%) 313 (63.1)	
Nativity and acculturation				
Nativity				<0.0001
U.S. born[c]	77 (15.5)	49 (26.8)	28 (8.9)	
Not U.S. born	420 (84.5)	134 (73.2)	285 (91.1)	
Country of birth				0.01
Dominican Republic	328 (78.1)	91 (67.9)	236 (82.8)	
Mexico	28 (6.7)	20 (14.9)	8 (2.8)	
Ecuador	14 (3.3)	7 (5.2)	7 (2.5)	
Other	50 (11.9)	16 (11.9)	34 (11.9)	
Length of U.S. residence[d] (years), mean [SD]	20.9 [13.0]	11.8 [8.6]	25.3 [12.5]	<0.0001
Length of U.S. residence[d] (years)				<0.0001
Less than 10 years	89 (21.8)	55 (41.7)	33 (12.0)	
10–19 years	108 (26.5)	54 (40.9)	54 (19.6)	
20–29 years	91 (22.3)	18 (13.8)	73 (26.5)	
30–39 years	85 (20.8)	4 (3.0)	81 (29.5)	
40–49 years	28 (6.9)	1 (0.8)	27 (9.8)	
50+ years	7 (1.7)	0 (0.0)	7 (2.5)	
Acculturation[e]				
U.S. acculturation, mean [SD]	1.78 [0.76]	2.09 [0.89]	1.63 [0.64]	<0.0001
Hispanic acculturation, mean [SD]	3.51 [0.59]	3.38 [0.68]	3.58 [0.53]	0.002

[a] Adequate health literacy = never or rarely need help reading instructions, pamphlets, or other written material from the doctor or pharmacy; inadequate = sometimes, often or always require help

[b] Among those with health insurance

[c] Including Puerto Rico

[d] Among non-US. born

[e] High acculturation = ≥2.5; low acculturation = <2.5

Table 2

Communication channel use by age category (≤ 45 vs. >45 years) among clients of the Northern Manhattan Improvement Corporation (n = 497), August, 2014 through June, 2015

	Total	Age		*p* value
	N (%) 497	Age ≤45 years N (%) 183 (36.9)	Age >45 years N (%) 313 (63.1)	
Internet				
Use Internet	266 (53.6)	155 (84.7)	111 (35.5)	<0.0001
Frequency of Internet use				0.002
Every day	141 (28.4)	96 (52.5)	45 (14.4)	
A few times per week	68 (13.7)	37 (20.2)	31 (9.9)	
Once per week	28 (5.6)	14 (7.7)	14 (4.5)	
Less than once per week	28 (5.6)	8 (4.4)	20 (6.4)	
Use Internet for email	218 (43.9)	135 (73.8)	83 (26.5)	0.015
Internet for personal use	256 (51.5)	149 (81.4)	107 (35.3)	0.61
Internet access[a]				
Desktop/laptop	154 (31.0)	78 (42.6)	76 (24.3)	0.003
Wireless Tablet	37 (7.4)	25 (13.7)	12 (3.8)	0.21
Cell phone	188 (37.8)	131 (71.6)	57 (18.2)	<0.0001
Source of Internet access[a]				
Home	132 (26.6)	70 (38.3)	62 (19.8)	0.84
Work	25 (5.0)	17 (9.3)	8 (2.6)	0.09
In school	9 (1.8)	7 (3.8)	2 (0.6)	0.12
Public library	17 (3.4)	13 (7.1)	4 (1.3)	0.04
Cell phone				
Have a cell phone	462 (93.0)	173 (94.5)	289 (92.3)	0.48
Receive emails on cell phone	212 (42.7)	128 (69.9)	84 (26.8)	<0.0001
Receive text message on cell phone	361 (72.6)	169 (92.3)	192 (61.3)	<0.0001
Cell phone supplied by medical insurance provider	115 (23.1)	25 (13.7)	90 (28.8)	<0.0001
Know how to send or receive text messages on cell phone	329 (66.2)	166 (90.7)	163 (52.1)	<0.0001
Use cell phone to send or receive text messages	225 (45.3)	131 (71.6)	94 (30.0)	<0.0001
Unlimited text messages	284 (57.1)	147 (80.3)	137 (43.8)	<0.0001
Social media[a]				
Facebook	213 (42.9)	137 (74.9)	76 (24.3)	<0.0001
Twitter	41 (8.2)	30 (16.4)	11 (3.5)	0.04
Instagram	12 (2.4)	9 (4.9)	3 (1.0)	0.25

[a]Groups not mutually exclusive

Table 3

Sources of health information by age category (≤45 vs. >45 years) among clients of the Northern Manhattan Improvement Corporation (n = 497), August, 2014 through June, 2015

	Total	Age		*p* value
	N (%) 497	Age ≤45 years N (%) 183 (36.9)	Age >45 years N (%) 313 (63.1)	
Sources of health information[a]				
Print media	213 (42.6)	67 (36.2)	147 (46.5)	0.02
Broadcast media	161 (32.6)	55 (30.2)	106 (34.0)	0.39
Health professional	399 (79.5)	133 (72.3)	265 (83.9)	0.002
Peers	128 (26.0)	55 (30.2)	73 (23.5)	0.10
Community center	11 (2.2)	1 (0.5)	10 (3.2)	0.05
Internet	262 (53.0)	136 (74.3)	126 (40.5)	<0.0001
Access Internet for self				<0.0001
Self	161 (76.3)	105 (93.8)	56 (56.6)	
Someone else looks for me	50 (23.7)	7 (6.3)	43 (43.4)	

[a] Groups not mutually exclusive

Table 4

Multivariable analysis of the predictors of the top sources of health information among clients of the Northern Manhattan Improvement Corporation (n = 497), August, 2014 through June, 2015

	Health professional			Internet			Printed media		
	OR	**95% CI**	**P value**	**OR**	**95% CI**	**P value**	**OR**	**95% CI**	**P value**
Health literacy									
Inadequate	1.00	–		1.00	-		1.00	-	
Adequate	2.59	1.54–4.35	<0.0001	3.15	1.97–5.04	<0.0001	0.76	0.50–1.16	0.20
Gender									
Male	1.00	-		1.00	-		1.00	-	
Female	1.03	0.63–1.68	0.92	1.18	0.74–1.86	0.49	1.32	0.89–1.98	0.17
Age									
≤45	1.00	-		1.00	-		1.00	-	
>45	1.64	0.99–2.72	0.06	0.29	0.18–0.47	<0.0001	1.64	1.07–2.50	0.022
Educational level									
>High school	1.00	-		1.00	-		1.00	-	
High school	1.32	0.77–2.25	0.31	0.42	0.25–0.70	0.001	1.04	0.66–1.62	0.88
≤Grade school	2.61	1.32–5.17	0.006	0.19	0.11–0.35	<0.0001			
Marital status									
Unmarried	1.00	-		1.00	-		1.00	-	
Married/living as married	1.13	0.69–1.85	0.62	2.08	1.32–3.26	0.001	0.90	0.61–1.33	0.61
Health insurance									
No	1.00	-		1.00	-		1.00	-	
Yes	2.54	1.37–4.71	0.003	0.83	0.42–1.66	0.61	0.66	0.37–1.18	0.16