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Health Behaviors of Older Chinese Adults Living in New York City

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Abstract

The dramatic increase in the number of older immigrants living in the U.S. presents new challenges to policy makers concerned with promoting healthy aging. To date, however, strikingly little is known regarding the health and health trajectories of older immigrants. This paper examines the prevalence and predictors of important health behaviors associated with chronic disease prevention, including current smoking status, physical activity, alcohol use, and body mass index (BMI). We analyzed data from the 2003 New York City Chinese Health Survey (NYC CHS), the largest probability-based sample of Chinese immigrants residing in two distinct communities. In-person interviews were conducted with 517 representative men and women aged 55–75. Logistic regression modeling was used to test the influence of demographic, socioeconomic status, acculturation, and health characteristics on selected health behaviors. Results revealed that having more education and better physical health status were associated with greater participation in physical activity. Gender-specific analyses indicated that the effect of selected predictors varied between the sexes. For example, among older Chinese women, acculturation was negatively associated with alcohol use. This study provides some of the first evidence on health behaviors of one of the fastest growing older immigrant groups in the U.S. Study results add to the emerging literature on the complex nature of immigrant health trajectories, and demonstrate that contrary to prior research, living a greater proportion of time in the U.S. can be associated with selected positive health behaviors. Further longitudinal studies are needed to help inform policy initiatives to encourage healthy aging among diverse older immigrant groups.

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Keywords

Older adults; Health behaviors; Immigrant populations; Chinese

Introduction

Over 3.1 million immigrants living in the U.S. are aged 65 and over, an all time high [1, 2]. This startling development coincides with the recent dramatic increase in younger immigrants arriving in the U.S., primarily from Latin America and Asia. The resulting paradox is that while the older immigrant population has remained stable for over 40 years, it has proportionately declined, from 32.6% in 1960 to 11.0% in 2000 [1]. As a result, older immigrants, despite their significant numbers, are thus in danger of being overlooked by policy makers. Moreover, this unprecedented population rise will result in a doubling of non-white elderly living in the U.S. by 2050, growing from 16 to 36% [3]. Given the intersection of these two unparalleled demographic shifts—the significant surge in growth of the older adult population and continued increase in immigration—there is a compelling need for studies to address the current paucity of information on the health status and health behaviors of older immigrant populations. In this paper, we present some of the first evidence on health status and health risk behaviors among older Chinese adults.

Chinese Americans make up the largest subgroup of Asian and Pacific Islanders (APIs), one of the fastest growing ethnic groups, currently representing 4% of the total U.S. population [4]. Asian subgroups differ vastly in regard to language, culture, socioeconomic characteristics, immigration status, and adaptation to host countries. Yet, with a few notable exceptions, most previous research has aggregated this population as a whole, masking important health disparities that exist among specific Asian subgroups [5–11]. Considerable empirical evidence suggests immigration-related factors, such as English proficiency, length of time in the U.S., and age of immigration are often associated with health outcomes, yet the relationships found are complex, not always consistent, and poorly understood. In general, much of research over the past decade on the potential effects of immigration-related factors on immigrants' health outcomes reveals a common pattern—immigrants have significant health advantages over their U.S.-born counterparts, initially, but over time, and with increasing length of residence in the U.S., this relative advantage decreases and converges with the health indicators and outcomes of the native-born population [6, 8, 12–14]. Yet, depending on the population category (aggregated or not), health outcome of interest, how immigration-related factors are measured, and the effect of demographic characteristics or socioeconomic status (SES), such as age, sex, or education, results are often inconsistent [15, 16]. Emerging literature challenges the proposition of an inevitability of a deterioration of health the longer an immigrant resides in the U.S [17–19]. Thus, as healthy aging gains momentum as an essential tenet of U.S. aging policy, it is critically important for policy makers to understand how best to encourage, support, and maintain positive health behaviors and health status among our growing diverse populations of older immigrants.

In this paper, we focus on health risks, including diet, physical activity, alcohol consumption, and smoking, responsible for a substantial proportion of morbidity and mortality in the U.S., as well as around the world [20, 21]. Little is known about the protective and risk practices of older foreign-born adults residing in the U.S., despite their growing number [18]. We organize this paper in three sections: (1) description of the prevalence of health behaviors, including current smoking, alcohol consumption, physical activity, and body mass index (BMI) among older Chinese immigrants, (2) analysis of the association of demographic factors, SES, and immigration and acculturation characteristics with selected protective and risk factors, and 3) examination of the correlates of health behaviors by gender.

Methods

Data Source

This study takes advantage of baseline, individual-level data from the New York City Chinese Health Study (NYC CHS). The CHS is the largest U.S. population-based household sample of Chinese residents aged 18–75 (n = 2,537) living in two geographically distinct communities in NYC. The survey was conducted from November 2002 to August 2003. The sample was based on representative households, and individuals within households were selected as eligible sample participants using a complex multi-stage systematic stratified sampling design. Details on sampling procedures for this study can be found elsewhere [22]. Sample data were weighted to account for unequal probabilities of sample selection and non-response. The overall response rate of the CHS baseline survey was 57.8%.

Trained bilingual interviewers conducted in-person interviews in English, Mandarin, Cantonese, and Fukinese. The survey instrument adapted standardized and validated questions from national surveys across several domains, including health behaviors, health care utilization, employment, acculturation, demographic characteristics, and SES. Since the focus of the present study is on older adults, the analytical sample was comprised of 517 respondents aged 55 years and older.

Measures

Dependent Variables—Health Behaviors—*Current smoking status* was assessed based on responses to three related questions: (1) “Have you ever smoked at least 100 cigarettes in your entire life?” (2) “Do you smoke cigarettes now?” and (3) “Do you now smoke cigarettes every day or some days?” We created a dichotomous variable to capture current smoking status that defined current smokers as those respondents who have smoked at least 100 cigarettes in their lifetime and now smoke either on some days or every day. Individuals categorized as non-current smokers included respondents who were former smokers or those who never smoked cigarettes.

Alcohol consumption was measured as number of drinks per month primarily due to high proportion of respondents who were non-drinkers (73.8%). Survey participants were asked the question “How often do you usually drink [specified alcoholic drink]?” Each type of alcohol, including beer, yellow wine, liquor, and wine, and the number of times it was

consumed, per day, per week, and per month was ascertained from the respondent. Alcohol use was treated as an ordinal response category: 0 = non-drinker, 1 = 1–30 drinks per month, and 2 = 30 or more drinks per month.

To assess *physical activity*, we created a dichotomous variable for the amount of physical activity respondents self-reported: a great deal of, a moderate amount of, or hardly any exercise. Due to the limited number of observations for the category a great deal of exercise in this study, we defined physical exercise as either moderate/great deal of exercise or hardly any exercise.

Body mass index (BMI) was calculated as weight (in kilograms) divided by height (in meters) squared. Based on BMI values, respondents were categorized into four groups: (1) underweight (BMI ≤18.5), (2) normal (BMI = 18.5–24.9), (3) overweight (BMI = 25.0–29.9), and (4) obese (BMI ≥30). For the multivariable analysis, we created a dichotomous variable to assess being overweight/obese, due to the small number of observations in the obese category. As a result, for the logistic regression analysis, respondents with a BMI greater than 25 were defined as having a high BMI.

Independent Variables

Demographic Characteristics and Socioeconomic Status—Demographic variables included *age* coded in years as a continuous variable, *gender* (female = 1; male = 0), and *marital status* (married vs. not married). SES was measured by education, income, and employment status. Options for educational level were based on a list of 11 pre-set responses that ranged from no schooling to graduate or professional school. The responses for *educational level* were recoded into three categories: less than high school, high school, and more than high school. A categorical scale was used to measure respondents' income levels in intervals of $10, 000 ranging from less than $10,000 to $70,000 or more. *Income* was recoded into four categories: (1) less than $10,000, (2) $10,000–$20,000, (3) $20,000–$30,000, and (4) more than $40,000. With respect to employment, while several categories were available to the respondent, for the purposes of this study, *employment status* was recoded to create a dichotomous variable: employed or self-employed vs. unemployed, retired, disabled, student, and homemaker.

Acculturation

The construct of acculturation was based on two related indicators. The first was temporality, and was measured by the proportion of the respondent's lifetime spent living in the U.S. The second indicator of acculturation was created to evaluate language use. Acculturation was measured as a composite of two categorical variables: speaks English in the home or reads English newspapers.

Health and Health Care

General physical and mental health status were assessed using the Medical Outcomes Study Short Form-12, version 2 (SF-12-v2). This scale contains 12 items that are summed and converted to standardized T-scores following a scoring algorithm, rendering scores with a mean of 50 and a standard deviation of 10. The SF-12 assesses physical health items,

including vitality, pain, and physical functioning, as well as mental health including emotional problems and social functioning, and has been translated and validated in Chinese [23]. *Number of chronic conditions* was a continuous measure based on self-report of hypertension, bronchitis, cancer, arthritis, tuberculosis, and asthma. In addition, we created two dichotomous variables (1 = yes; 0 = no) to capture health care access and utilization: whether the respondent had *health insurance* at the time of the interview, and a *visit to a health care provider* during the past year.

Data Analysis

We used Stata 8.2 to account for complex sample design involving stratification and multistage sampling of the CHS [24]. Chi-square tests were used to examine bivariate associations between demographic, SES, acculturation and health characteristics and health behaviors, including current tobacco use, alcohol consumption, physical exercise, and obesity. Significance was determined at the .05 level.

Logistic regression modeling was used to identify the independent effect of demographic factors, SES, acculturation, and health characteristics on each health behavior. Ordinal logistic regression analysis was used to estimate the predictors of alcohol consumption due to the configuration of the outcome variable. Adjusted odds ratios (ORs) and 95% confidence intervals (CI) were reported for all variables in the models. All analyses were stratified by gender, except for smoking status, for which only correlates for being a current smoker were estimated for men due to the small number of older women smokers.

Results

Sample Characteristics

Table 1 presents the demographic characteristics of older Chinese immigrants residing in New York City. The mean age of the sample was 63.5 years of which 42.2 and 57.8% were women and men, respectively. Significant associations were found between gender and several demographic characteristics of the study sample. Women compared with men were more likely to be younger, between the ages of 55–64 (67.2 vs. 50.8%; $p \leq .01$), while men were more likely to be married (94.7 vs. 83.2%; $p \leq .01$), and to be employed (44.6 vs. 31.7%; $p \leq .05$) than their female counterparts. Nearly two-thirds (61.8%) of the sample had less than a high school education. Over 95% of men and women were foreign-born, and nearly half of the sample had lived in the U.S. for 16 years or more. Overall, only 9.1% of older adults in the sample were considered acculturated. The overall mean score for physical health was nearly the same as the general U.S. population (50.1). Yet, gender differences were found. Women compared with men scored slightly lower on the physical summary scale (49.4 vs. 50.6; $p \leq .05$). The overall mental health score (51.3) was slightly higher than the U.S. population mean, with no notable differences between men and women. Older Chinese adults reported, on average, 1.38 chronic conditions. With regard to health care access and utilization, an overwhelming majority (79.6%) reported having heath coverage at the time of the interview, and 81.9% saw a health care provider in the past year, with no important differences by gender.

Prevalence of Health Behaviors

Among all respondents, 14.1% were current smokers. Nearly three quarters of the sample was comprised of non-drinkers. Of those who drank during the previous 30 days, slightly less than a quarter had between 1 and 30 drinks. Over two-thirds of men and women participated in moderate physical activity. While only roughly 2% of the sample was obese, 30% had BMI levels between 25.0 and 29.9, categorizing them as overweight (Table 2).

Gender differences were noted among the selected health behaviors. Compared with women, men were more likely to be current smokers (1.0 vs. 23.6%; $p \leq .01$), and less likely to abstain from alcohol use (84.8 vs. 65.9%; $p \leq .01$). Interestingly, no differences were noted by gender for physical activity or BMI.

Multivariable Analysis of Correlates of Health Behaviors

Table 3 demonstrates the adjusted ORs from logistic regression models of the total sample for smoking status, physical activity, BMI, and alcohol intake while adjusting for age, gender, marital status, education, income, employment, proportion of time living in the U.S., acculturation, health status, visit to health care provider during past year, having health insurance, and number of chronic conditions. As noted in the methods section, the analysis of alcohol intake was conducted using ordered logistic regression. Several factors had a statistically significant independent effect on current smoking. Results indicate that older Chinese adults who were female, married, and more educated were less likely to be a current smoker ($p \leq .05$).

With respect to physical exercise, individuals with a high school education or more compared with those without a high school degree were significantly more likely to participate in physical activity (More than high school: OR = 3.49, 95% CI = 1.62, 7.52; High school: OR = 2.32; 95% CI = 1.06, 5.04). Older adults with an income level greater than $40,000 compared with those who earned less than $10,000 annually were less likely to engage in moderate to a great deal of physical activity (OR = .34; 95% CI = .14, .83). Having lived a greater vs. lesser proportion of their lives in the U.S., was a positive predictor of physical activity among elder Chinese adults (OR = 1.02; 95% CI = 1.01, 1.05). Older adults who had better vs. worse physical health scores on the SF-12 were more inclined to participate in moderate physical activity (OR = 1.06; 95% CI = 1.03, 1.10). Furthermore, individuals who reported having health insurance compared with those who did not were more likely to engage in physical activity (OR = 2.50; 95% CI = 1.22, 5.15).

The only predictor of high BMI was chronic conditions. Relative to respondents with fewer chronic conditions, those with a greater number of morbid health conditions were 32% more likely to have a high BMI.

Alcohol consumption was significantly associated with age, gender, and education, but in opposite directions. Respondents who were younger and female sex were less likely to be in a higher alcohol intake category. Alternatively, relative to older adults with less than a high school education, those with higher educational attainment were more likely to consume greater quantities of alcohol (OR = 1.84; 95% CI = 1.01, 3.35).

Multivariable Analysis of Correlates of Health Behaviors Stratified by Gender

Tables 4 and 5 show the results for health risk behaviors stratified by gender. For women and men, higher educational achievement and higher physical health scores on the SF-12 were associated with increased participation in physical activity. Yet, the multivariable analysis revealed other differences by gender in regard to physical activity, strikingly only for women. Among older women, income level, having health insurance, and mental health status also were associated with moderate to a great deal of participation in physical activity, yet in opposite directions. Relative to women who earned less than $10,000 per year, those with higher annual incomes were less likely to engage in moderate physical activity. Alternatively, older women who reported not having health insurance compared with those with coverage were over three and a half times more likely to engage in physical activity. In addition, better mental health status was positively associated with greater physical activity (OR = 1.09; 95% CI = 1.01, 1.19).

In the stratified analyses by gender, important factors associated with higher BMI only were noted for men. Older men with more chronic conditions compared with those with fewer morbid health problems were more likely to have a high BMI (OR = 1.31; 95% CI = 1.02, 1.70).

Several predictors were associated with alcohol intake that differed between men and women. Income level, education, and acculturation all had an independent effect on alcohol use for women. For example, acculturated vs. not acculturated older women were nearly eight times more likely to consume alcohol. Yet among men, younger vs. older age was associated with less alcohol consumption (OR = .92; 95% CI = .86, .98).

Finally, with respect to smoking status, for which we only examined males, older adults with higher vs. lower levels of education were less likely to be a current smoker (More than high school: OR = .35, 95% CI = .17, .72; High school: OR = .30; 95% CI = .11, .84).

Discussion

This study contributes to the emerging literature on the health behaviors of older foreign-born adults living in the U.S. Our findings indicate that as a whole, older Chinese adults practice healthy behaviors. While gender differences in current smoking patterns were revealed in our analysis, overall, 14.1% (95% CI = ±5.8) of older Chinese men and women were current smokers. This is slightly higher than the 9.3% of older adults in NYC (over the age of 65) who were current smokers in 2003 [25]. Previous research has shown a slightly higher proportion of current smokers among the elderly Chinese population (both men and women and over the age of 60) living in the southwest region of China, approximately 25% with large gender differences in prevalence rates [26]. We also observed a relatively high rate of lifetime alcohol abstinence among participants—73.8%, although sharp difference between men and women were noted in regard to alcohol use during the past 30 days. By contrast, in a recent study of older Mexican adults, Masel and colleagues found 52.8% of respondents never drank alcohol [27]. The majority of older Chinese adults engaged in moderate physical activity. No differences by gender were found in BMI, but overall nearly

31% of the sample was overweight. This is comparable to results from a recent study of elderly Asian Indians, in which 35% of respondents had a BMI between 25.0 and 29.9 [17].

In the multivariable analyses conducted for the entire sample, we found education had a protective effect on the health behaviors of older Chinese immigrants. Overall, higher levels of education were associated with a decrease in odds of being a current smoker and greater participation in physical activity. Yet, income was inversely related to physical activity. This result is contrary to previous research. Generally, individuals in higher income groups are more inclined to engage in healthy practices [28]. Yet, among immigrant populations, higher household income levels may not afford individuals or families time to participate in physical activity due to the long hours spent in the workplace to earn enough money to support their family in the U.S., as well as sending remittances to family members in their home country. We found a positive association between percentage of time in the U.S. and physical activity. While few studies have examined the relationship between acculturation and physical activity, in general [18], and even fewer among the elderly, the above finding is consistent with a recent study of older Asian Indian adults [17]. This finding, increased physical activity associated with longer residence in the U.S., offers contradictory evidence to prior studies showing increases in health risk behaviors among immigrants over time in the U.S., and might be a result of increased stability over time, with more opportunities to engage in health promoting behaviors later in life. Better physical health status was associated with greater levels of physical activity among older Chinese adults, similar to previous studies on older adults [29–31].

In analyses stratified by gender, several of the relationships found in the total sample remain when examining men and women separately, such as higher educational levels and better physical health status were positively associated with greater participation in physical activity. Yet, differences were noted. For example, having health insurance was associated with moderate or a great deal of physical activity for the entire sample, but was significantly more pronounced among older Chinese women. Having health insurance had a definite impact on women's vs. men's participation in physical activity. This might be partially explained by a sense of stability and access to health care allowing for an interface with the health care delivery system that is likely to promote healthy behaviors, including exercise.

Although income and education have been reported to have a positive effect on health-promoting behaviors in the general population, our results reveal the opposite in regard to income. Higher vs. lower incomes were associated with less physical activity among older Chinese women. Previous studies have shown a positive association between physical activity and mental health status—older adults who engaged in physical activity were at less risk for depression. These findings, which are consistent with prior studies on the relationship between physical activity and depression among the elderly, revealed that older Chinese women in better vs. worse mental health were more likely to engage in physical activity [31, 32]. Thus, for older women, both mental and physical health are important factors in predicting participation in physical exercise. While it does appear that, overall, education is associated with better health behaviors, among women there are notable exceptions where the opposite is true—more education was associated with higher rates of alcohol consumption. Furthermore, among older Chinese women, the likelihood of increased

alcohol consumption was significantly greater for those who were more acculturated. Few studies have investigated alcohol use among API women, but among Latinas, other scholars have reported similar findings [33]. This difference might be partially explained by the shift in perceived gender norms from the country of origin to the host country (i.e., behaviors not readily accepted in one's homeland are common practice in the U.S.) [34–36].

These data provide new evidence of health behaviors among older foreign-born populations, confirming positive relationships between health and education, but questioning others, such as deterioration of health associated with length of residence in the U.S. For instance, higher education was associated with lower likelihood of being a current smoker, and higher levels pf physical activity. However, older Chinese adults who had lived in the U.S. for a longer vs. shorter period of time were more likely to participate in moderate physical activity. Our finding was contrary to the conclusions of previous studies examining the role of nativity and temporality on the health outcomes of immigrant populations, where increased time in the U.S. was associated with an increase in sedentary lifestyle for immigrants [8]. Kandula and Lauderdale posit that perhaps physical activity decreases immediately upon arrival in the host country for several reasons, but after an adjustment period, there is an increase in leisure time activities among many immigrant populations [18].

While recent attention has focused on individual-level factors that either promote or impede adaptation to a new culture, the results of this study suggest socioeconomic characteristics are more important contributors to health risk behaviors than is culture adaptation or “acculturation.” In particular, to better understand the health behaviors of older immigrant populations, including those adults represented in this study, many of whom are “late-arrivers” (nearly the age of 50) to the U.S., “acculturation,” per se, is not as important to consider as SES or the stage in the life course these individuals find themselves in a new country. As opposed to their younger counterparts, who are easily influenced by peer pressure, spousal and family support or friend networks, as well as co-morbid conditions and health status become significantly more salient for older immigrants [35, 37]. Increased attention should be directed to the larger social and economic factors likely to influence health behaviors of elderly immigrants, including neighborhood factors, social network composition, and discrimination. Jonnalagadda and Diwan found a positive association between social support and selected health behaviors of older Asian Indian adults, including dietary intake, indicating that having social mechanisms in place can encourage participation in healthy behaviors [17]. Evidenced based intervention programs that consider cultural, economic, and social heterogeneity in targeting healthy eating, smoking cessation, and an increase in physical activity among older Chinese adults could benefit overall health.

Limitations

Study limitations should be noted. The sample represented a relatively stable and healthy population of older immigrants living in households. The frail elderly and the oldest old were not represented in this sample. With regard to measurement issues, we used validated proxies for acculturation: English language use and time in the U.S [38–40]. Multidimensional scales offer a more precise measure of acculturation. While a multi-component acculturation scale was not available for these baseline data, measures of ethnic

identity, proportion of friends who are Chinese, etc will be available in the second round of data for this study. Second, important health risk behaviors were omitted in our analysis, such as fat intake [17, 41], fruit and vegetable consumption, and differences in leisure time and non-leisure time physical activity [18]. Third, this study took place in New York City, and despite the high concentration of Chinese adults in the metropolitan area, it is unclear whether our results are generalizable to the broader older Chinese adult population living in other regions of the country. Fourth, while the overall sample size was adequate for our analyses, stratification by gender resulted in smaller groups and wide confidence intervals for some of our estimates, thereby limiting our power to detect some associations. Finally, all health data were self-reported, and thus may have been biased toward perceived acceptability of health behaviors and not reflective of actual practices.

Conclusion

This is, to our knowledge, the first population-based study to examine important health behaviors, including current smoking, alcohol consumption, physical activity, and BMI of older Chinese immigrants residing in the U.S. Unparalleled gains in life expectancy during the last century have lead to dramatic changes in the patterns of health care use and disease, primarily related to the increase in chronic care disability. Coupled with the increasing older adult population in general, racial/ethnic elders will make up a large proportion of this age cohort. Thus, as the nation anticipates the unprecedented rise in racial/ethnic older adults living in the U.S, there is much we can learn from today's older immigrants to help prepare for this increase and promote healthy aging. There is a pressing need to address the disparities in disease burden among older minority populations. Most of the health behaviors under study are amenable to change, and participation in health-promoting activities is important to improve the functional health of older adults. The development of interventions that are culturally appropriate for older immigrants is critical to the health of these populations. Prevention programs should be tailored to address differences in gender, education, and adaptation to the host country. Although largely ignored, improving the health behaviors and health status of older immigrant populations must become a priority for our local and national health leaders and policy makers.

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Table 1

Characteristics of study sample

Sample characteristic	Women (*n* = 181)	Men (*n* = 336)	Total (*N* = 517)
Percent of sample (%)	42.2	57.8	100
Age, mean (*se*)	62.4 (.61)	64.3 (.40)	63.5 (.38)
Age categories (%)			
55–64**	67.2	50.8	57.7
65–75**	32.8	49.2	42.2
Married** (%)	83.2	94.7	89.8
Education (%)			
Less than HS	68.9	56.5	61.8
High School	11.8	16.1	14.2
More than HS	19.3	27.4	24.0
Income (%)			
Less than $10,000	34.7	29.6	31.6
$10,000–$20,000	27.9	34.5	31.9
$20,000–$40,000	22.9	22.2	22.5
Greater than $40,000	14.4	13.7	14.0
Employed* (%)	31.7	44.6	39.2
Length of time in US (%)			
5 or less years	10.6	9.6	10.0
6–15 years	45.7	39.0	41.8
16 or greater years	43.8	51.4	48.2
Percentage of time in US, mean (*se*)	24.6 (1.5)	26.8 (1.0)	25.9 (.9)
Acculturated (%)	10.3	8.2	9.1
SF-12—Physical Health Summary Scale, mean* (*se*)	49.4 (.8)	50.6 (.5)	50.1 (.4)
SF-12—Mental Health Summary Scale, mean (*se*)	50.4 (.6)	52.0 (.4)	51.3 (.4)
Visit to HCP in past year (%)	80.6	82.8	81.9
Has health insurance	77.6	81.1	79.6
Chronic conditions, mean (*se*)	1.40 (.1)	1.36 (.1)	1.38 (.1)

Note: Acculturation is a composite of two categorical variables regarding language and media: Speaks English in the home or reads English newspapers most of all days. All values except for Ns are weighted. SE indicates standard error of the mean. HS = high school SF-12—physical and mental health summary scales. HCP = health care professional.

* $p \leq .05$;

** $p \leq .01$

Table 2

Health behaviors of older Chinese adults in New York City

	Women (*n* = 181) (%)	Men (*n* = 336) (%)	Total (*n* = 517) (%)
Current smoker **	1.0	23.6	14.1
Alcohol consumption in a month **			
Non-drinker	84.8	65.9	73.8
1–30 drinks/moderate	14.5	27.4	22.0
30+ drinks	.7	6.7	4.2
Physical exercise			
Little	28.4	23.9	25.8
Moderate	65.6	69.5	67.8
High	5.9	6.6	6.3
BMI categories			
<18.5	7.2	4.9	5.9
18.5–24.9	64.0	58.6	60.9
25.0–29.9	27.9	33.0	30.8
≥30	.9	3.5	2.4
Mean BMI	23.1 (.33)	23.5 (.26)	23.3 (.21)

All values except for Ns are weighted.

* $p \leq .05$;

** $p \leq .01$

Table 3

Adjusted odd ratios from logistic regression models of health behavior indicators

	Current smoker OR (95% CI)	Moderate/great deal physical exercise OR (95% CI)	High BMI OR (95% CI)	Alcohol intake[a] OR (95% CI)
Age	.95 (.88, 1.03)	.99 (.93, 1.06)	1.01 (.95, 1.07)	**.92 (.87, .98)** **
Gender				
Male	1.00	1.00	1.00	1.00
Female	**.02 (.01, .11)** ***	.96 (.52, 1.74)	.68 (.37, 1.25)	**.33 (.19, .60)** ***
Marital status				
Not married	1.00	1.00	1.00	1.00
Married	**.26 (.08, .87)** *	1.01 (.42, 2.42)	2.48 (.81, 7.57)	1.37 (.54, 3.49)
Education				
<High school	1.00	1.00	1.00	1.00
High school	**.32 (.12, .88)** *	**2.32 (1.06, 5.04)** *	1.39 (.65, 3.00)	.56 (.22, 1.43)
>High school	**.33 (.16, .69)** **	**3.49 (1.62, 7.52)** ***	.61 (.32, 1.17)	**1.84 (1.01, 3.35)** *
Income level				
Less than $10,000	1.00	1.00	1.00	1.00
$10,000–$20,000	.77 (.33, 1.77)	.93 (.44, 1.95)	1.14 (.55, 2.37)	.58 (.29, 1.17)
$20,000–$40,000	1.01 (.42, 2.43)	.68 (.28, 1.62)	1.05 (.45, 2.45)	.69 (.31, 1.54)
Greater than $40,000	.50 (.17, 1.46)	**.34 (.14, .83)** *	1.32 (.49, 3.52)	.78 (.30, 2.06)
Employment				
Unemployed	1.00	1.00	1.00	1.00
Employed	1.17 (.56, 2.47)	.90 (.42, 1.93)	.89 (.42, 1.89)	1.05 (.53, 2.07)
Percentage of time in US	.99 (.97, 1.01)	**1.02 (1.01, 1.05)** *	1.01 (.99, 1.02)	1.00 (.98, 1.02)
Acculturation				
Not acculturated	1.00	1.00	1.00	1.00
Acculturated	1.05 (.39, 2.83)	.45 (.16, 1.28)	1.18 (.43, 3.22)	2.00 (.77, 5.15)
General health status				
SF-12—physical	.99 (.95, 1.03)	**1.06 (1.03, 1.10)** ***	.98 (.94, 1.01)	1.00 (.97, 1.04)
SF-12—mental	.98 (.93, 1.03)	1.03 (.99, 1.07)	.1.03 (.99, 1.07)	1.00 (.96, 1.04)
Visit HCP in past year				
No	1.00	1.00	1.00	1.00
Yes	.61 (.27, 1.39)	.63 (.25, 1.57)	1.02 (.45, 2.31)	.56 (.28, 1.12)
Health insurance				
No	1.00	1.00	1.00	1.00
Yes	1.21 (.47, 3.14)	**2.50 (1.22, 5.15)** *	.72 (.33, 1.59)	.98 (.50, 1.90)
Chronic conditions	.80 (.62, 1.03)	1.01 (.80, 1.29)	**1.32 (1.05, 1.65)** *	.89 (.71, 1.11)

Note:

HCP = health care professional SF-12 = Short Form-12, version 2

[a]Results represent an ordered logistic regression as opposed to a binary logistic regression as performed for the other three dependent variables. Significant odds ratios are highlighted in boldface,

*$p \leq .05$;

**$p \leq .01$;

***$p \leq .001$.

Table 4

Adjusted odd ratios from logistic regression models of health behavior indicators by gender women only

	Moderate/great deal physical exercise OR (95% CI)	High BMI OR (95% CI)	Alcohol intake[a] OR (95% CI)
Education			
High school	5.61 (1.59, 19.83) **	NS	NS
>High school	8.18 (1.83, 36.46) **	NS	5.60 (1.65, 19.01) **
Income level			
$10,000–$20,000	NS	NS	.08 (.01, .51) **
$20,000–$40,000	.16 (.03, .79) *	NS	NS
Greater than $40,000	.05 (.01, .32) ***	NS	NS
Acculturation			
Acculturated	NS	NS	7.99 (1.33, 48.19) *
General health status			
SF-12—physical	1.07 (1.01, 1.13) *	NS	NS
SF-12—mental	1.09 (1.01, 1.19) *	NS	NS
Has health insurance	3.58 (1.12, 11.48) *	NS	NS

Note:

Smoking status is not predicted for women because so few women are current smokers ($n = 3$), analyses of smoking status was conducted with men only. HCP = health care professional SF-12 = Short Form-12, version 2. Reference categories include: younger age, male, not married, less than high school education, less than $10,000 income, unemployment, fewer years in the US, not acculturated lower scores on SF-12, physical component, lower scores on SF-12, mental component, did not see a health care provider during past year, fewer chronic conditions

[a]Results represent an ordered logistic regression as opposed to a binary logistic regression as performed for the other three dependent variables.

*$p \leq .05$;

**$p \leq .01$;

***$p \leq .001$.

Table 5

Adjusted odd ratios from logistic regression models of health behavior indicators by gender men only

	Moderate/great deal physical exercise OR (95% CI)	High BMI OR (95% CI)	Alcohol intake[a] OR (95% CI)	Current smoker OR (95% CI)
Age	NS	NS	.92 (.86, .98) *	NS
Education				
High school	NS	NS	NS	.30 (.11, .84) *
>High school	2.89 (1.35, 6.19) **	NS	NS	.35 (.17, .72) **
Percentage of time in US	NS	NS	NS	NS
General health status				
SF-12—physical	1.08 (1.04, 1.14) ***	NS	NS	NS
SF-12—mental	NS	NS	NS	NS
Chronic conditions	NS	1.31 (1.02, 1.70) *	NS	NS

Note:

Smoking status is not predicted for women because so few women are current smokers ($n = 3$), analyses of smoking status was conducted with men only. HCP = health care professional SF-12 = Short Form-12, version 2. Reference categories include: younger age, male, not married, less than high school education, less than $10,000 income, unemployment, fewer years in the US, not acculturated lower scores on SF-12, physical component, lower scores on SF-12, mental component, did not see a health care provider during past year, fewer chronic conditions

[a]Results represent an ordered logistic regression as opposed to a binary logistic regression as performed for the other three dependent variables.

*$p \leq .05$;

**$p \leq .01$;

***$p \leq .001$.