

# Age Differences in Health Status and Health Services Utilization among Chinese Adults in New York City

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## BACKGROUND

- Older immigrants present a growing challenge to policy makers concerned with optimal resource allocation to promote healthy aging in urban neighborhoods.
- Among the many complex and multidimensional health issues facing immigrants, those related to access to services and health care coverage are the most pressing.
- Yet, little is known about health care access and utilization patterns among Asians, who comprise one of the fastest growing immigrant populations in the U.S.
- Furthermore, Chinese Americans represent the largest Asian subgroup in New York City (over 350,000), with a 58% increase from 1990.
- The results reported are from the first population-based assessment of health status, utilization characteristics, and health care access of Chinese immigrants in New York City (NYC) as they differ by age.

### Objectives:

- Describe the prevalence of health status, access to care, and health services utilization by age.
- Examine the independent effects of socioeconomic and demographic characteristics and acculturation on health status, access to care, and utilization of services among younger and older Chinese adults.

## METHODS

### Data Sources

- Face-to-face household-based interviews were conducted with a representative sample of Chinese adults aged 18-75 living in two distinct communities in New York City

- 2003 baseline sample: n=2,537
- Response rate: 57.8%
- Analytic sample: full sample stratified by age.

### Measures

#### Dependent variables

- Health status
  - Self-reported general health status (fair/poor vs. good/excellent)
  - Had chronic health condition

#### Health services utilization

- Had health insurance
- Had a usual source of care
- Saw a health care provider during the past year

#### Independent variables

- Demographic: age, gender, marital status
- Socioeconomic: education, employment, income
- Acculturation: country of origin (mainland China vs. Taiwan, Hong Kong, U.S.), percentage of time in US, acculturation measure
- Neighborhood: lived in Flushing, Queens vs. Sunset Park, Brooklyn

### Analysis

- All variables were weighted to adjust for the complex and multistage sampling design.
- $\chi^2$  statistics were used to test differences in health status and health services utilization outcomes between younger and older Chinese immigrants.
- Logistic regression analyses were utilized to examine the independent effects of demographic and socioeconomic characteristics, acculturation, and neighborhood factors on selected health outcomes
- Adjusted odds ratios and 95% confidence intervals are reported.

## RESULTS

Table 1. Characteristics of study sample by age

Sample Characteristic	Under 55 (n=2013)	Over 55 (n=517)	Total (n=2537)
Mean Age (years)	37.6	63.5	42.6
Female	45.4	42.2	44.8
***Married (%)	74.8	89.8	77.7
***Employed (%)	73.4	39.2	66.7
***Education (%)			
Less than High School	37.0	61.8	41.7
High School	25.4	14.3	23.3
More than High School	37.6	24.0	35.0
***Income (%)			
Less than \$10,000	11.0	31.6	14.8
\$20,000 - \$40,000	35.4	31.9	34.8
\$20,000 - \$40,000	28.5	22.5	27.4
Greater than \$40,000	25.0	14.0	23.0
***Acculturated (%)	25.0	9.1	21.9
***Born in Mainland China	77.1	90.4	79.7
Mean percentage of time in US (years)	31.6	25.9	30.4
Lived in Flushing, Queens	45.4	48.5	46.0

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. \* p ≤ 0.05; \*\* p ≤ 0.01; \*\*\* p ≤ 0.001

Table 2. Health Status and Health Services Utilization of Chinese Adults in NYC by Age

	Under 55 (n=2013) %	Over 55 (n=517) %	Total (n=2537) %
<b>Health Status</b>			
***Excellent/V. Good/Good Health	70.7	52.5	67.2
***Number of chronic conditions			
0	71.0	28.7	62.8
1-3	27.7	64.6	34.8
3+	1.3	6.7	2.3
***Reported chronic condition	29.0	71.3	37.2
<b>Health Care Access and Utilization</b>	71.6	76.1	74.2
***Has insurance	67.2	79.6	69.6
Has a usual source of care	93.6	92.9	93.5
***Saw a HCP in past year	70.4	81.9	72.6

Note: HCP=health care provider. All values except for Ns are weighted. \* p ≤ 0.05; \*\* p ≤ 0.01; \*\*\* p ≤ 0.001

Table 3. Logistic Regression: Predictors of Health Status Indicators among Chinese Immigrants in NYC

Variables	Excellent/Good Health Status		Chronic Conditions	
	Under 55 OR (95% CI)	Over 55 OR (95% CI)	Under 55 OR (95% CI)	Over 55 OR (95% CI)
Age	.99 (.97, 1.01)	1.03 (.98, 1.08)	<b>1.09 (1.07, 1.12)</b>	1.04 (.98, 1.10)
Female	.75 (.54, 1.05)	1.27 (.75, 2.16)	.96 (.69, 1.33)	1.72 (.92, 3.19)
Married	.98 (.59, 1.63)	1.55 (.66, 3.61)	1.05 (.64, 1.72)	1.70 (.69, 4.19)
Education				
HS	.75 (.48, 1.17)	.77 (.40, 1.49)	1.06 (.68, 1.64)	.65 (.31, 1.37)
More than HS	.84 (.55, 1.29)	1.14 (.62, 2.48)	1.30 (.85, 1.99)	.46 (.19, 1.12)
Income				
\$10,000 - \$20,000	.85 (.47, 1.55)	.76 (.31, 1.87)	.82 (.46, 1.45)	.76 (.30, 1.93)
\$20,000 - \$40,000	.91 (.55, 1.50)	1.01 (.43, 2.41)	1.48 (.92, 2.38)	.87 (.35, 2.14)
Greater than \$40,000	.98 (.61, 1.58)	.92 (.38, 2.21)	1.14 (.74, 1.76)	1.95 (.84, 4.56)
Employed	1.43 (.96, 2.15)	<b>2.18 (1.14, 4.15)</b>	.87 (.57, 1.31)	.51 (.26, 1.00)
Acculturated	1.34 (.84, 2.14)	1.92 (.74, 5.01)	.90 (.60, 1.34)	.68 (.27, 1.73)
Born in mainland China	<b>.65 (.43, .99)</b>	.96 (.38, 2.40)	<b>.54 (.36, .79)</b>	.46 (.17, 1.21)
Percentage of time in US	<b>1.01 (1.01, 1.02)</b>	1.01 (.99, 1.02)	1.00 (.99, 1.01)	1.00 (.98, 1.02)
Lived in Flushing, Queens	.85 (.61, 1.18)	1.15 (.66, 2.02)	<b>.59 (.42, .82)</b>	<b>.52 (.30, .92)</b>
Chronic Conditions	<b>.38 (.28, .53)</b>	<b>.54 (.31, .96)</b>	N/A	N/A
Has health insurance	1.16 (.82, 1.65)	.59 (.30, 1.10)	.92 (.64, 1.31)	.90 (.44, 1.84)

Note: Age and percentage of time in U.S. are continuous. N/A=Not Applicable HS=High School. OR=odds ratio; CI=confidence interval. Significant odds ratios are highlighted in boldface. Reference categories include: male, not married, less than high school education, less than \$10,000 income, unemployment, not acculturated, other country of origin, lived in Sunset Park, Brooklyn, no chronic conditions, no health insurance.

## RESULTS (cont'd)

Table 4. Logistic Regression: Predictors of Health Services Utilization Indicators among Chinese Immigrants in NYC

Variables	Has Health Insurance		Has Usual Source of Care		Saw HCP during past year	
	Under 55 OR (95% CI)	Over 55 OR (95% CI)	Under 55 OR (95% CI)	Over 55 OR (95% CI)	Under 55 OR (95% CI)	Over 55 OR (95% CI)
Age	<b>1.04 (1.02, 1.06)</b>	<b>1.14 (1.06, 1.22)</b>	.96 (.93, 1.00)	1.07 (.94, 1.21)	1.00 (.97, 1.02)	1.02 (.94, 1.10)
Female	<b>1.88 (1.34, 2.64)</b>	.86 (.45, 1.62)	1.84 (.90, 3.75)	.82 (.27, 2.50)	<b>2.53 (1.78, 3.61)</b>	1.13 (.45, 2.80)
Married	1.66 (1.00, 2.76)	1.70 (.66, 4.39)	1.87 (.87, 3.98)	**	<b>1.76 (1.06, 2.91)</b>	.61 (.14, 2.59)
Education						
HS	<b>.50 (.33, .75)</b>	.85 (.39, 1.86)	2.02 (.88, 4.65)	.90 (.29, 2.81)	.89 (.58, 1.36)	.63 (.29, 1.36)
More than HS	.72 (.47, 1.10)	.83 (.30, 2.30)	.58 (.28, 1.18)	.85 (.19, 3.75)	.83 (.54, 1.28)	.98 (.23, 4.14)
Income						
\$10,000 - \$20,000	<b>.44 (.24, .80)</b>	.93 (.26, 3.42)	.45 (.14, 1.38)	<b>30.4 (3.28, 282.08)</b>	.85 (.46, 1.57)	1.57 (.46, 5.33)
\$20,000 - \$40,000	.59 (.35, 1.00)	.50 (.19, 1.36)	.50 (.22, 1.61)	<b>7.84 (1.31, 46.9)</b>	.87 (.53, 1.43)	1.33 (.45, 3.92)
Greater than \$40,000	<b>.44 (.27, .72)</b>	1.11 (.37, 3.29)	.59 (.22, 1.58)	1.86 (.48, 7.15)	.73 (.45, 1.19)	.85 (.26, 2.71)
Employed	.88 (.57, 1.35)	.99 (.45, 2.19)	.66 (.28, 1.52)	.54 (.15, 1.95)	1.06 (.70, 1.61)	.78 (.31, 1.94)
Acculturated	<b>2.21 (1.34, 3.64)</b>	1.06 (.39, 2.88)	1.73 (.74, 4.01)	3.52 (.31, 39.9)	<b>1.57 (1.06, 2.33)</b>	.91 (.31, 2.68)
Born in mainland China	<b>1.63 (1.05, 2.53)</b>	.72 (.23, 2.24)	.34 (.08, 1.41)	.23 (.01, 3.47)	1.16 (.76, 1.78)	.28 (.06, 1.28)
Percentage of time in US	<b>1.03 (1.02, 1.04)</b>	1.01 (.99, 1.04)	<b>1.04 (1.01, 1.07)</b>	1.06 (.98, 1.08)	<b>1.01 (1.00, 1.03)</b>	1.01 (.94, 1.08)
Lived in Flushing, Queens	<b>.41 (.30, .57)</b>	.70 (.35, 1.40)	.63 (.36, 1.10)	3.26 (.97, 11.03)	.86 (.61, 1.22)	.93 (.44, 1.96)
Chronic Conditions	.97 (.69, 1.38)	.90 (.43, 1.89)	<b>2.14 (1.13, 4.03)</b>	2.25 (.75, 6.73)	<b>4.10 (2.80, 6.00)</b>	<b>3.86 (1.49, 10.01)</b>
Has health insurance	N/A	N/A	<b>4.48 (2.45, 8.19)</b>	<b>8.46 (2.14, 33.46)</b>	<b>2.62 (1.86, 3.69)</b>	<b>8.25 (3.54, 19.22)</b>

Note: Age and percentage of time in U.S. are continuous. N/A=Not Applicable HS=High School HCP=Health care provider. OR=odds ratio; CI=confidence interval. \*\* perfect association between being married and having a usual source of care. Significant odds ratios are highlighted in boldface. Reference categories include: male, not married, less than high school education, less than \$10,000 income, unemployment, not acculturated, other country of origin, lived in Sunset Park, Brooklyn, no chronic conditions, no health insurance.

## CONCLUSIONS

### Summary

- Important differences exist in health status, access to care, and health services utilization between younger and older Chinese immigrants in New York City.
- Older vs. younger Chinese adults were more likely to report poor health status, and considerably more chronic conditions, including, diabetes and heart disease. But, relative to younger Chinese respondents, older adults were more likely to be insured and to have a usual source of care.
- Age-specific multivariable analyses demonstrated that the observed differences of the effects of demographic characteristics, socioeconomic status, acculturation measures chronic conditions and insurance status on health status and health utilization indicators varied among Chinese adults by age.
- Finally, measures of acculturation, including country of origin, time in US, etc., did not have an independent effect on any outcome measure among older Chinese adults.

### Implications

- As immigrant populations age, it becomes increasingly important to understand and address the full range of social determinants of healthy aging. Measures of adaptation may not play as large a role in assessing health status and health care utilization among older adults compared with younger immigrants.
- Our findings can inform public health practice targeting effective and culturally competent health initiatives among urban immigrant populations over the lifespan.

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