



Gavin W. Hougham, PhD
Director - Seattle Operations
Battelle Advanced Analytics & Health Research

Lisa A. Cubbins, PhD
Senior Research Scientist
Battelle Advanced Analytics & Health Research

Hyoshin Kim, PhD
Senior Research Scientist
Battelle Advanced Analytics & Health Research

Aging among Older Asian and Pacific Islander (PI) Americans:

What Improves Health-Related Quality of Life

Annual Meeting of the *American Public Health Association*, November 2015

Battelle

The Business of Innovation

Presenter Disclosures

Gavin W. Hougham, PhD

The following personal financial relationships with commercial interests relevant to this presentation existed during the past 12 months:

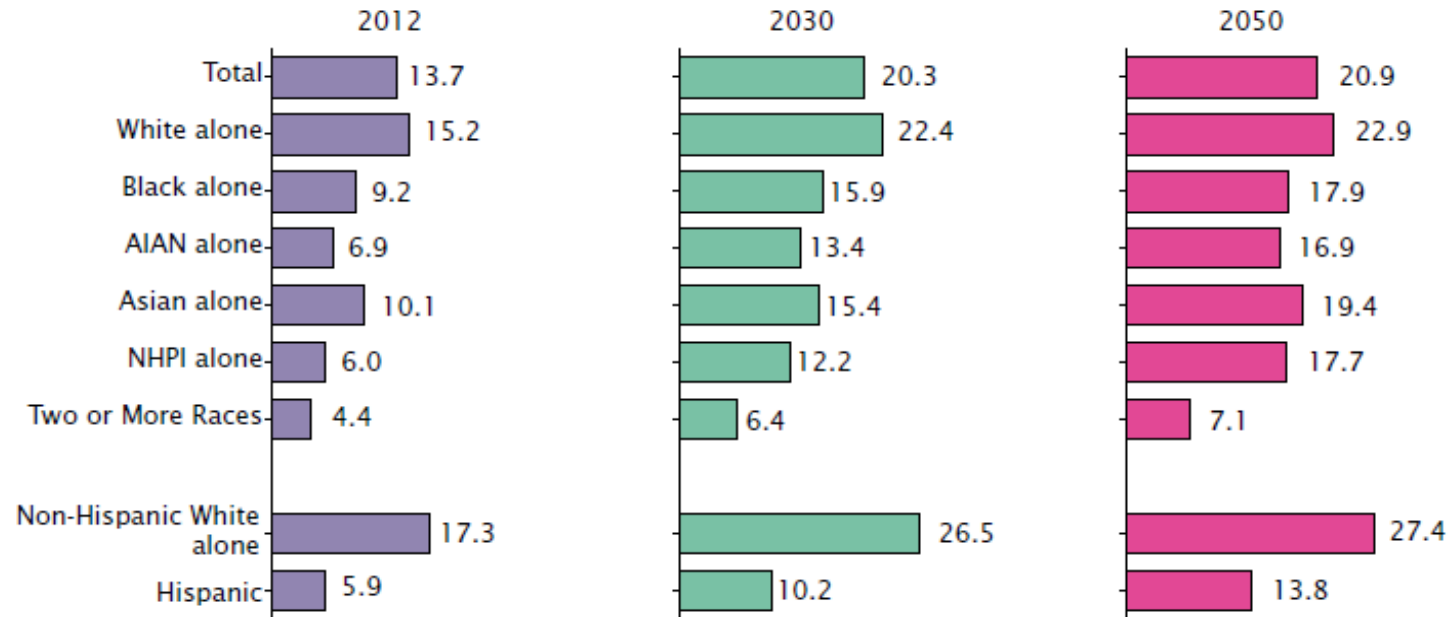
No relationships to disclose.

Context of Aging for Asian/Pacific Islander (PI) Americans

- Growing population of older Asian/PI Americans in the U.S.
 - Multi-ethnic/multi-cultural populations – not homogenous
 - Large proportion of immigrants
 - Recent arrivals and refugees
 - English language proficiency
- Gaps in knowledge
 - As Asian/PI Americans age, are certain social or cultural experiences or characteristics associated with better health and quality of life?
 - Are their health needs being met?
 - Is our clinical workforce ready to care for them?

Context of Aging: Growing Segment of US Population Age 65+

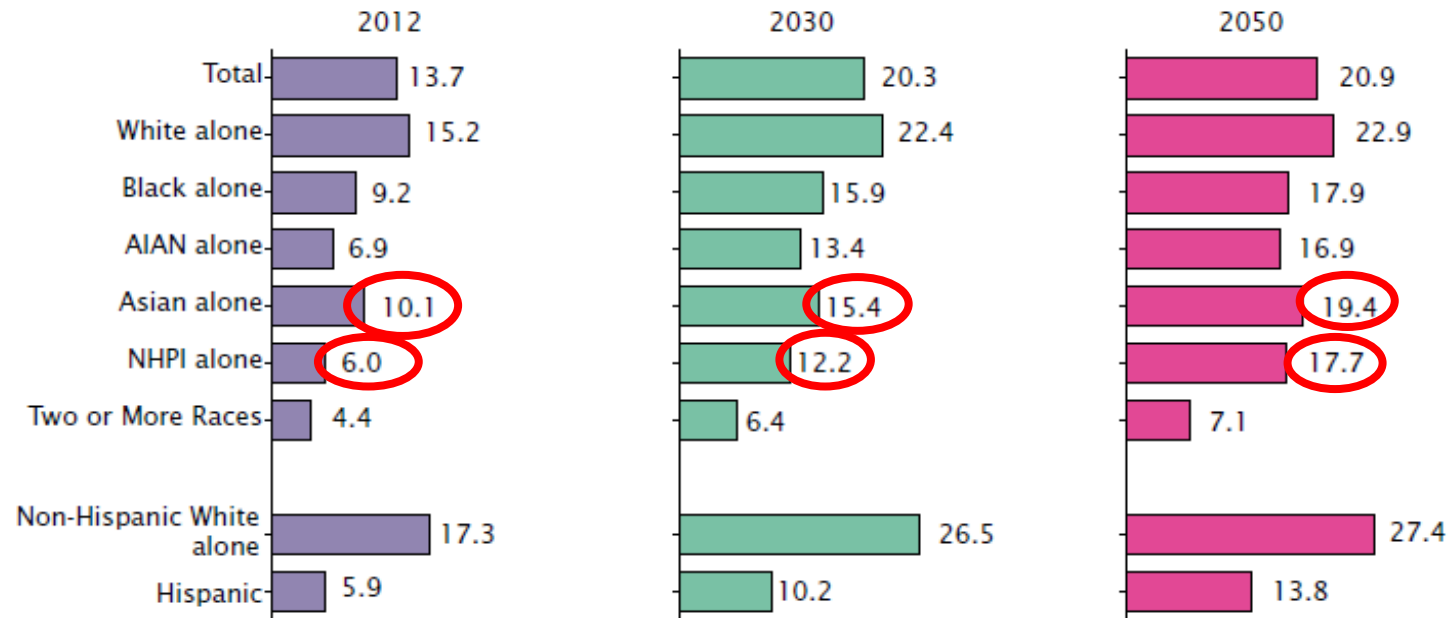
Figure 9.
**Percent Aged 65 and Over by Race and Hispanic Origin for the United States:
 2012, 2030, and 2050**
 (Percent of group's total population)



Notes: AIAN = American Indian and Alaska Native. NHPI = Native Hawaiian and Other Pacific Islander.
 Source: U.S. Census Bureau, 2012 Population Estimates and 2012 National Projections.

Context of Aging: Growing Segment of US Population Age 65+

Figure 9.
**Percent Aged 65 and Over by Race and Hispanic Origin for the United States:
 2012, 2030, and 2050**
 (Percent of group's total population)



Notes: AIAN = American Indian and Alaska Native. NHPI = Native Hawaiian and Other Pacific Islander.
 Source: U.S. Census Bureau, 2012 Population Estimates and 2012 National Projections.

Context of Aging: *Multi-Ethnic Groups*

- **Largest Asian American groups**
 - *Chinese (3.8m), Filipino (3.4m), Indian (3.1m), Vietnamese (1.7m), Korean (1.7m), Japanese, Pakistani, Cambodian, Hmong, Thai, Laotian, Taiwanese, Bangladeshi, Burmese, Indonesian, Nepalese, Sri Lankan, Malaysian, Bhutanese*
- **Native Hawaiian or other Pacific Islander**
 - *Any of the original peoples of Hawaii, Guam, Tonga, Samoa, Fiji, the Marshalls or other Pacific Islands, Indigenous Australians, and Maori*

Context of Aging: *Immigration*

**Percent of Population Who Are Foreign-Born
by Race and Hispanic Origin, United States 2007-2009
(Source: US Census, 2007-2009 American Community Survey)**

<i>Population Group</i>	<i>% Foreign-Born</i>
African American	8%
American Indian & Alaskan Native	5%
Asian American	60%
Hispanic	38%
Native Hawaiian & Other Pacific Islander	14%
Non-Hispanic White	4%
<i>Total US Population</i>	13%

Context of Aging: *Immigration*

**Percent of Population Who Are Foreign-Born
by Race and Hispanic Origin, United States 2007-2009**
(Source: US Census, 2007-2009 American Community Survey)

<i>Population Group</i>	<i>% Foreign-Born</i>
African American	8%
American Indian & Alaskan Native	5%
Asian American	60%
Hispanic	38%
Native Hawaiian & Other Pacific Islander	14%
Non-Hispanic White	4%
<i>Total US Population</i>	13%

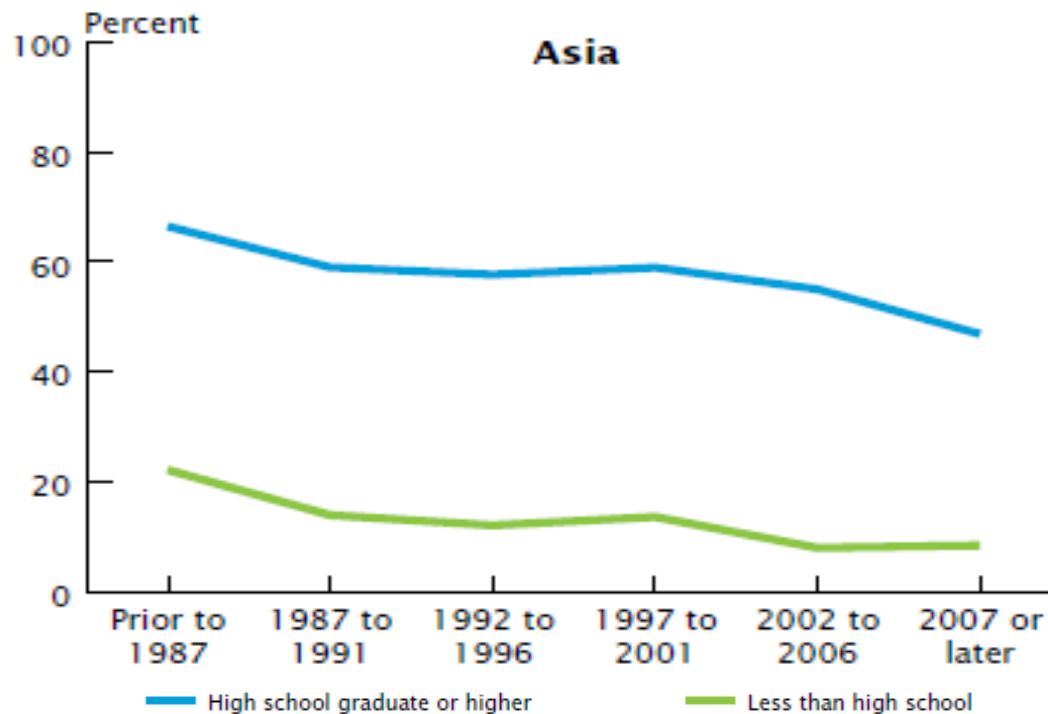
Context of Aging: *Refugees and Asylees*

- From 2001 to 2010, **26% of all refugee** arrivals and **33% of persons granted asylum** were from **Asian countries**.
- From 2001 to 2010, 52% of refugee arrivals from Asian countries were from **Burma**, and 68% of asylees born in Asia were from **China**.

Source: The U.S. Department of Homeland Security's Yearbooks of Immigration Statistics, 2010.

Context of Aging for Asian/PI Americans: *English language proficiency*

Percent of the Foreign-Born Asian Americans with High English-Speaking Ability by Period of Entry and Education (2012)



Source: U.S. Census Bureau, 2012 American Community Survey, 1-year estimates.

Issues Unique to Healthy Aging Among Older Asian/PI Americans

- Multiple ethnicities with varying histories
- Issues related to immigrant status:
 - Timing of US entry -- Age, period, cohort effects
 - Refugees and asylum seekers
 - “Healthy Immigrant” paradox – time matters
 - Language barriers / geographic mobility / neighborhood effects
 - Legal challenges / fear of losing status
 - Financial and social resources / array of differences + and -
 - Access & use of health care system / confusion

Key Research Questions

- What is associated with *quality of life* among older Asian/PI Americans? (Physical and Mental domains)
- As Asian/PI Americans age, are certain experiences or characteristics more important for achieving a better *quality of life*? (Physical and Mental domains)

Methods - data

- *National Epidemiological Survey on Alcohol and Related Conditions (NESARC)* — High quality representative sample of the US civilian, non-institutionalized population of individuals 18 years or older in 2001/2002 (Wave 1, N = 43,093)
- Wave 2 (2004/2005) added new variables important for this analysis (Total N = 34,653)
- 3.3% (N = 1,131) of Wave 2 all-ages sample is Asian/PI
- Final analytic sample (N = 401):
 - 302 Asian/PI adults ages 45-64
 - 99 Asian/PI adults age 65 or older

Methods - dependent measures

- Quality of Life (QOL) measured by SF12-V2[®] scales (Ware et al.)
 - Physical Health and Mental Health Summary Subscales
 - Physical fitness, general health, bodily pain, physical role function
 - Mental health, emotional role function, social function, vitality
 - Norm-based scoring of 12-item questionnaire
 - Allows comparison across populations
 - Scales have standard deviation of 10 and mean of 50 on 100 pt scales
 - Lower scores indicate poorer health
 - QOL Means (SDs) in NESARC Wave 2 Asian/PI sample:
 - **Physical: Ages 45-64 = 51.6 (8.4) vs. Ages 65+ = 44.4 (13.3) [$p < .001$]**
 - **Mental = Ages 45-64 = 51.5 (9.2) vs. Ages 65+ = 51.1 (10.0)**

Methods - dependent measures

- Quality of Life (QOL) measured by SF12-V2[®] scales (Ware et al.)
 - Physical Health and Mental Health Summary Subscales
 - Physical fitness, general health, bodily pain, physical role function
 - Mental health, emotional role function, social function, vitality
 - Norm-based scoring of 12-item questionnaire
 - Allows comparison across populations
 - Scales have standard deviation of 10 and mean of 50 on 100 pt scales
 - Lower scores indicate poorer health
 - QOL Means (SDs) in NESARC Wave 2 Asian/PI sample:
 - **Physical: Ages 45-64 = 51.6 (8.4) vs. Ages 65+ = 44.4 (13.3) [$p < .001$]**
 - **Mental = Ages 45-64 = 51.5 (9.2) vs. Ages 65+ = 51.1 (10.0)**

Methods – explanatory measures

Socio-Demographics

- Demographics (age; gender; race/ethnicity; marital status)
- Immigrant status (nativity; refugee)
- SES (college graduate; paid work; HH income; health insurance)

Social Support

- Perceived support
- Social network size (close ties; instrumental ties)
- Religious activity

Stress

- Number of traumatic events in past year
- Perceived discrimination (in medical care; in other social situations, such as jobs or in public)
- Perceived level of stress

Cultural Practices & Identity

- Frequency in socializing with members of own ethnic group
- Frequency in using English
- Ethnic identity (self identification; preferred social ties)

Methods - analysis

- Descriptive sample statistics (unweighted)
- Multivariate analyses
 - Addressing *what contributes to QOL among older Asian/PI Americans*:
 - Ordinary least-squares (OLS) regression with weighted data predicting Physical QOL and Mental QOL
 - Addressing *whether certain experiences or characteristics are more important for achieving a better quality of life as Asian/PI Americans age*:
 - Interaction terms added to test for whether explanatory variables have different relationships with QOL measures between the two age groups

Descriptive Statistics

Sample Characteristics	45 – 64 (N = 302)	65 or older (N = 99)
% Female	51.2%	61.9%
% Immigrant*	81.6%	70.3%
Immigrants: Average years in USA**	22.9 yrs	30.2 yrs
% Refugee	12.4%	6.6%
% Married***	86.0%	60.4%
% College graduate**	46.4%	29.1%
% Has paid work***	69.5%	13.3%
% Has health insurance***	83.7%	97.6%
Average annual HH income***	\$77.9K	\$46.6K
<i>Means difference tests: *p<.05, **p<.01, ***p<.001</i>		

Descriptive Statistics

Sample Characteristics	45 – 64 (N = 302)	65 or older (N = 99)
% Female	51.2%	61.9%
% Immigrant*	81.6%	70.3%
Immigrants: Average years in USA**	22.9 yrs	30.2 yrs
% Refugee	12.4%	6.6%
% Married***	86.0%	60.4%
% College graduate**	46.4%	29.1%
% Has paid work***	69.5%	13.3%
% Has health insurance***	83.7%	97.6%
Average annual HH income***	\$77.9K	\$46.6K
<i>Means difference tests: *p<.05, **p<.01, ***p<.001</i>		

Findings — Physical QOL

Variable	B	(SD)	Beta
Age group: 45-64	1.46	(1.66)	.06
Whether married	4.15***	(1.17)	.16
Whether immigrant	4.39*	(2.04)	.17
Years in USA (if immigrant)	-.12**	(.05)	-.17
Level of religious activity	-1.39**	(.43)	-.14
Perceived health care discrimination	-1.38***	(.38)	-.16
Perceived stress--lack of control	-1.05*	(.46)	-.10
Preference for using English	3.94***	(.78)	.48
Interaction Age group X Preference for using English	-2.39**	(.81)	-.28
Constant/Intercept	47.64***	(1.64)	
<i>Model Adjusted R² = .25***</i>		<i>*p<.05, **p<.01, ***p<.001</i>	

Findings — Physical QOL

Variable	B	(SD)	Beta
Age group: 45-64	1.46	(1.66)	.06
Whether married	4.15***	(1.17)	.16
Whether immigrant	4.39*	(2.04)	.17
Years in USA (if immigrant)	-.12**	(.05)	-.17
Level of religious activity	-1.39**	(.43)	-.14
Perceived health care discrimination	-1.38***	(.38)	-.16
Perceived stress--lack of control	-1.05*	(.46)	-.10
Preference for using English	3.94***	(.78)	.48
Interaction Age group X Preference for using English	-2.39**	(.81)	-.28
Constant/Intercept	47.64***	(1.64)	
<i>Model Adjusted R² = .25***</i> * <i>p</i> <.05, ** <i>p</i> <.01, *** <i>p</i> <.001			

Findings — Mental QOL

Variable	B	(SD)	Beta
Age group: 45-64	0.94	(.97)	.04
Whether immigrant	4.22**	(1.24)	.18
Whether refugee	-3.62**	(1.33)	-.21
Perceived social support	3.09***	(.40)	.35
Perceived stress--lack of control	-4.91***	(.88)	-.52
Preference for using English	1.00*	(.42)	.13
Interaction Age group X Perceived stress--lack of control	3.57***	(1.00)	.34
Constant/Intercept	49.23***	(1.10)	
<i>Model Adjusted R² = .26***</i>		<i>*p<.05, **p<.01, ***p<.001</i>	

Findings — Mental QOL

Variable	B	(SD)	Beta
Age group: 45-64	0.94	(.97)	.04
Whether immigrant	4.22**	(1.24)	.18
Whether refugee	-3.62**	(1.33)	-.21
Perceived social support	3.09***	(.40)	.35
Perceived stress--lack of control	-4.91***	(.88)	-.52
Preference for using English	1.00*	(.42)	.13
Interaction Age group X Perceived stress--lack of control	3.57***	(1.00)	.34
Constant/Intercept	49.23***	(1.10)	
<i>Model Adjusted R² = .26***</i>		<i>*p<.05, **p<.01, ***p<.001</i>	

Overall Findings

Variable	Physical QOL	Mental QOL
Being married	<i>increases</i>	--
Being an immigrant	<i>increases</i>	<i>increases</i>
Immigrants – longer time in USA	<i>reduces</i>	--
Being a refugee	--	<i>reduces</i>
Higher perceived social support	--	<i>increases</i>
Higher religious activity	<i>reduces</i>	--
Greater perceived health care discrimination	<i>reduces</i>	--
Higher perceived stress	<i>reduces</i>	<i>reduces</i> 65+ > 45-64
Higher preference for using English	<i>increases</i> 65+ > 45-64	<i>increases</i>

Limitations

- Cross-sectional data (causality)
- Non-institutionalized sample biases toward healthier sample
- Lack of measurement of potentially important factors
 - Ethnic and cultural differences within Asian/PI sample
 - Unknown legal status
 - Unknown neighborhood effects (e.g., ethnic enclaves + and -)
 - Unknown geographic effects (e.g., state by state differences + and -)
 - Unknown physical activity levels

Key empirical findings

- **Perceived discrimination in health care** associated with worse *physical health* among older respondents.
- **Perceived stress** is associated with poorer *physical* and *mental health* for all respondents, but has a larger impact on *mental health* for oldest Asian/PI respondents.
- A **preference for using English** is associated with better *physical* and *mental health* for all respondents, but larger impact on *physical health* for oldest Asian/PI respondents.



Policy / Program / Training Implications

- Address communication issues, perceived discrimination, and potential confusion in accessing health care
- Raise awareness among health and social services professionals about unique health issues of Asian/PI Americans, especially those related to immigrant and refugee experiences
- Intervene early to address perceived stress
- Promote social interaction and support
- Note differential impact on older adults



Thank you!

Gavin W. Hougham, PhD
Site Director - Seattle Operations
Battelle Advanced Analytics and Health Research
1100 Dexter Ave North
Seattle, WA 98109
206.528.3022

hougham@battelle.org
<https://www.linkedin.com/in/gavinhougham>
<http://www.battelle.org/>



About Battelle

Every day, the 20,000 people of Battelle apply science and technology to solving what matters most. At major technology centers and national laboratories around the world, Battelle conducts research and development, designs and manufactures products, and delivers critical services for government, commercial, and non-profit customers. Headquartered in Columbus, OH since its founding in 1929, Battelle makes the world better by commercializing technology, giving back to our communities, and supporting science, technology, engineering and mathematics (STEM) education. For more information, visit www.battelle.org.

Media Contacts:

**Katy Delaney at 614.424.7208 or delaneyk@battelle.org, or
T.R. Massey at 614.424.5544 or masseytr@battelle.org.**