

# UC Berkeley

## UC Berkeley Electronic Theses and Dissertations

### Title

Healthy Enclaves or Isolated Neighborhoods? Understanding the Role of Racial Residential Segregation on the Health Status of Asian Americans Implications for Research, Policy, and Practice

### Permalink

<https://escholarship.org/uc/item/8td591bc>

### Author

Rebanal, Raphy David

### Publication Date

2014

Peer reviewed|Thesis/dissertation

**HEALTHY ENCLAVES OR ISOLATED NEIGHBORHOODS?  
UNDERSTANDING THE ROLE OF RACIAL RESIDENTIAL SEGREGATION ON THE  
HEALTH STATUS OF ASIAN AMERICANS**

IMPLICATIONS FOR RESEARCH, POLICY, AND PRACTICE

BY

RAPHY DAVID REBANAL

A dissertation submitted in partial fulfillment  
of the requirements for the degree of  
Doctor of Public Health  
In the  
Graduate Division  
of the  
University of California, Berkeley

Doctoral Committee:  
Professor Amani Nuru-Jeter, Chair  
Professor Jason Corburn  
Professor Taeku Lee

Fall 2014

© Raphy David Rebanal

Abstract  
Healthy Enclaves or Isolated Neighborhoods?  
Understanding the Role of Racial Residential Segregation on the Health Status of Asian  
Americans: Implications for Research, Policy, and Practice

By  
Raphy David Rebanal  
Doctor of Public Health  
University of California, Berkeley  
Professor Amani Nuru-Jeter, Chair

Racial residential segregation is known to affect the social, physical, and mental well-being of segregated minority groups in the United States. Racial residential segregation creates different exposures to a variety of resources that enhance health, including economic opportunity and access to health-promoting resources such as grocery stores and parks. Racial residential segregation also increases exposure to adverse conditions such as crime, alcohol, and toxic air pollutants. Few studies examining the relationship between segregation and health have focused on Asian Americans. However, data show that several Asian Americans groups experience considerable racial residential segregation, and are now the fastest growing population in the country. Furthermore, high-degrees of segregation have enabled political power in Black communities as a mechanism to counter the negative effects of isolation. Much less, however, is known about the effects of segregation on the political and social capital of Asian Americans and its benefits to health. Further research is needed to test the complex association between residential segregation, its mechanistic pathways, and overall health status of Asian Americans.

In this three-paper dissertation, I ask 1) What are the potential mechanisms by which racial segregation is associated with self-rated physical and mental health status among Asian Americans in the United States? 2) How does social capital and political empowerment, moderate the association of racial segregation and self-rated mental health status among Asian Americans? 3) How can building political empowerment be utilized by public health departments to address the effects of racial segregation and the health of Asian Americans? Paper #1 examines the empirical evidence of the association between residential segregation and Asian American health by critically reviewing the literature with a relational geography lens, and is one of the first papers to examine this literature. Paper #2 empirically tests the role of residential segregation on health status of AAs and the moderating roles of social capital and collective political participation. To do so, I employ multilevel modeling methods using the *California Health Interview Survey* (2011-12). Paper #3 studies the role of political empowerment in addressing segregation and health, and utilizes comparative multi-site case-study design, key informant interviews, participant observations, and document reviews that to review in California counties with high Asian-white residential segregation. Specifically, I document examples of collective political empowerment, and discuss the role of health practitioners—particularly those employed at local health departments—in building political empowerment as a health promotion and equity strategy.

## Dedication

To my parents, Raphy and Ofelia, who taught me the value of dreaming big

To my partner, Olivia, who inspires me daily to strive for our dreams

To my children, Philly, Tatiana, and R.J., who remind me that dreams come true

## Acknowledgements

I would be remiss if I were to not express my profound gratitude to the many individuals who have supported, advised, and guided me through my doctoral training and dissertation process. First I'd like to thank my dissertation committee, most especially my Chair, Amani Nuru-Jeter. I cannot express enough how fortunate I am to have you as my mentor, colleague, and friend, and could never completed this dissertation with your guidance. You brought out the best in me. To my other committee members, Jason Corburn and Taeku Lee—your support and insights were invaluable, and I shall value our many conversations as a highlight of this challenging and rewarding process.

I also received generous feedback and mentorship from my academic advisor, Meredith Minkler, and Rachel Morello-Frosch and S. Leonard Syme. Thank you. I wish to thank other faculty and colleagues who advised me early-on in this process: Gil Gee, Marguerite Ro, David Takeuchi, Emily Walton, Bill Jesdale, Cheri Pies, and Denise Herd. One of the most enjoyable experiences during this process was a summer residency at PolicyLink, working with Mildred Thompson, Angela Glover Blackwell, Judith Bell, Victor Rubin, and Erin Hagan, who helped me refine several ideas for my dissertation. I want to recognize my peers who provided extra feedback and emotional support through methods courses, seminars, study sessions, and coffee dates, most especially Irene Headen, Evan van Dommenlen-Gonzalez, Ryan Petteway, Kathi Schaff, Solange Gould, and Alison Chopel, as well others who I am likely failing to mention at this moment.

Thanks to Karin MacDonald at the Statewide Database & Election Administration at UC Berkeley who provided me data for this dissertation. Thank you to Tara Becker at UCLA Center for Health Policy Research, who endured my many analytic requests, STATA code errors, and novice questions. I also want to recognize the many experts, leaders, organizers, elected officials , and front-line public health practitioners who served as advisors, informants, collaborators, and connectors when conducting my field interviews: Al Jabbar, Alex Tom, An Le, (newly elected Mayor) Bao Ngyuen, Chris Punongbayan, Iosefa Alofaifuli, Jane Chai, Jason Lacsamana, Jonathan Tran, Lue Yang, Malcolm Yeung, Ray Colmenar, Assemblymember Rob Bonta, Scott Chan, Sophia Dewitt, Thea Jones, Travers Ichinose, Virginia Mosqueda, Thank you for the all the work you do to improve our community's health and advance social justice.

To my family, friends, and neighbors who gave me encouragement, affirmation, and support, or who helped watch my kids when I had to work late: I couldn't gotten to this place without you. Thank you Thomas Aschenbrener, for helping me kickstart this journey; and Virginia Lee and family, who gave me a place to sleep when conducting field research and site visits.

And last but not least, I wish to thank, Olivia, my wife, and my three kids-Ophelia, Tatiana, and Raphy Jose—who gave me the necessary time and space to complete my degree. More than that, you gave me reason to push through, as your unwavering belief in me motivated me when I needed it most. Olivia, I will never forget your love and support during this process, and proudly share this moment with you.

Finally, I wish to acknowledge the UC Berkeley School of Public Health for their financial support and UC Berkeley Public Health Alumni Association for additional grant support.

## TABLE OF CONTENTS

ABSTRACT.....	1
DEDICATION.....	i
ACKNOWLEDGEMENTS.....	ii
TABLE OF CONTENTS.....	iii
<b>INTRODUCTION.....</b>	<b>1</b>
Public Health and the Racial Formation of Asian Americans in the U.S.....	1
Racial residential segregation: a fundamental cause of health inequities .....	3
Research Objectives.....	4
REFERENCES.....	5
<hr/>	
<b>PAPER #1. RACIAL RESIDENTIAL SEGREGATION AND ASIAN AMERICAN HEALTH: A CRITICAL REVIEW WITH A RELATIONAL LENS.....</b>	<b>8</b>
INTRODUCTION.....	8
Asian American neighborhoods: Ethnic Enclaves or Segregated Spaces.....	9
Towards a Relational View of Neighborhood Ethnic Segregation.....	11
METHODS.....	12
<i>Figure 1. Literature Search and Findings</i> .....	13
RESULTS.....	13
Summary of Findings: Scope, Scale, and Social Theory.....	13
<i>Table 1. Summary Table of Racial Residential Segregation and Health of Asian Americans</i> .....	15
Theoretical Frameworks.....	17
Measures of Racial Residential Segregation.....	17
Associations between Segregation and Health.....	18
Incorporating a “Relational” Perspective of Place.....	20
<i>Table 2. Literature Review Findings: Incorporating A Relational View of Place</i> .....	20
DISCUSSION.....	24
Factors Influencing Health Effects of Residential Segregation.....	26
CONCLUSION.....	28
REFERENCES .....	29
<hr/>	
<b>PAPER #2: EXAMINING THE ROLES OF RESIDENTIAL RACIAL SEGREGATION, SOCIAL CAPITAL, AND POLITICAL EMPOWERMENT ON THE PSYCHOLOGICAL DISTRESS OF ASIAN AMERICANS IN CALIFORNIA: AN EXPLORATORY STUDY.....</b>	<b>35</b>
BACKGROUND.....	35
<i>Figure 1. Conceptual Framework for Racial Residential Segregation, Social Capital, Political Empowerment, and Health Status</i> .....	37

METHODS.....	38
<i>Table 1. CHIS and dimensions of Social Capital.....</i>	40
<i>Table 2. Correlation Matrix for Asian American voter registration, voter turnout, and social capital, CHIS 2011-2012.....</i>	40
<i>Table 3: Summary of Variables.....</i>	41
<i>Table 4. Selected Characteristics of Respondents (CHIS, 2011-2012) .....</i>	41
Statistical Analysis.....	42
RESULTS.....	43
<i>Table 5. Sample Characteristics, by High-Moderate (<math>Dx \geq 0.4</math>) and Low (<math>Dx &lt; 0.4</math>), All Asian Americans .....</i>	44
<i>Table 6. Multilevel regression analysis of psychological distress, social capital, and political empowerment among Asian Americans, California (CHIS 2011-2012.....</i>	46
DISCUSSION.....	47
CONCLUSION.....	49
WORKS CITED.....	50
<hr/>	
<b>PAPER #3: CAN POLITICAL EMPOWERMENT IMPROVE HEALTH EQUITY IN SEGREGATED ASIAN AMERICAN NEIGHBORHOODS? RECOMMENDATIONS FOR PUBLIC HEALTH FROM A CASE STUDY OF THREE CALIFORNIA COUNTIES.....</b>	<b>53</b>
INTRODUCTION.....	53
Residential Segregation, Political Empowerment, and Asian American Health.....	53
Opportunity Spaces: Asian American Segregation and Political Empowerment .....	55
A Guiding Framework for Asian American Political Empowerment.....	56
<i>Figure 1. Explaining Asian American Political Participation. ....</i>	57
<i>Figure 2. Bay Area Health Inequities Initiative Framework for Reducing Health Inequities, 2010. ....</i>	58
METHODS.....	59
Selection of Cases.....	59
<i>Table 1. Case selection criteria, counties with moderate-high residential segregation</i>	
Selection of Key Informants.....	60
STUDY PROCEDURES.....	61
Data Analysis and Coding.....	61
KEY FINDINGS.....	62
<i>Table 2. Selected Contextual Characteristics of Cases (California Counties) .....</i>	62
Domains and Key Themes.....	63
DISCUSSION .....	71
<i>Figure 3. Framework for Public Health and Asian American Political Empowerment .....</i>	73
Further Implications for Public Health Practice.....	74
Strengths and limitations.....	74
WORKS CITED.....	76



---

**CONCLUSION** .....80

APPENDIX .....81

## INTRODUCTION

### **Public Health and the Racial Formation of Asian Americans in the U.S.**

The overwhelming narrative for Asian Americans in the United States has been one that perpetuates the myth of the “model minority”, which states that collectively all Asian Americans are healthy despite their minority status. Ironically, this narrative persists in the field of public health, even as public health has declared that eliminating disparities in health by race and ethnicity as its overarching goal (Healthy People 2020, 2011). The category “Asian American<sup>1</sup>” represents a diversity of religions, customs, languages, values, and social class backgrounds, with no common language, religions, or traditions uniting these various groups (Tseung, 2009). According to the 2010 Census, Asian Americans are now the fastest growing racial group in the United States. Though California’s population of more than 5.5 million Asian Americans remained the country’s largest, several other states showed significant growth over the last decade. The population of Asian Americans in Nevada more than doubled, while in Arizona it almost doubled. Southern states, including Georgia, Arkansas and Alabama, also showed rapid growth (Hoeffel, 2012). These demographic changes have implications for institutions and resources that affect population health, including the nation’s public health system, which is accountable for the health of all people in its jurisdiction.

While public health often depicts Asian Americans (Asians) collectively as faring well, a historical examination of how public health departments have treated Asians reveals occasions of institutional racism, and arguably has contributed to the social production of health inequalities experienced by Asians. In the 1870s, before bacteriology was discovered, health was largely promoted through sanitation interventions. Some populations, such as Chinese, were considered “unclean” and believed to be innately “dirty” and “disease ridden” (Chase, 2004). As historian Nayan Shah (2001) documents in *Contagious Divides: Epidemics and Race in San Francisco’s Chinatown*, public health officials helped to construct an early Chinese identity conflated with disease, vice, and filth, citing official health reports authored by the city health officer warning the “Caucasian population” of the Chinese living standards and styles: “As a class, their mode of life is the most abject in which it is possible for human beings to exist. The great majority of them live crowded together in rickety, filthy, and dilapidated tenement houses, like so many cattle or hogs” (Shah, 2001, p.27). Such worry by public health officials was used to justify the segregation of San Francisco-Chinatown residents through public health measures such as quarantines, where Chinese residents were restricted to a few city blocks marked by barbed wire, whereas Whites living in the same area were free to move in and out of the area at will (Baldwin, 2002). The Chinese Exclusion Act of 1882, which denied Chinese laborers entrance to the U.S., was fueled in part by sensationalized media reports of “uncurable” and “mysterious” Asian

---

<sup>1</sup> According to U.S. Office of Management & Budget, “Asian” refers to a person having origins in any of the original peoples of the Far East, Southeast Asia, or the Indian subcontinent, including, for example, Cambodia, China, India, JAA, Korea, Malaysia, Pakistan, the Philippine Islands, Thailand, and Vietnam. The Asian population includes people who indicated their race(s) as “Asian” or reported entries such as “Asian Indian,” “Chinese,” “Filipino,” “Korean,” “Japanese,” and “Vietnamese” or provided other detailed Asian responses (Hoeffel, 2012).

diseases, and endorsed by some public health professionals (Gee & Ro, 2009), further disenfranchising Chinese Americans by preventing state and federal courts opportunities to naturalized citizenship and political participation, thus “branding Chinese other Asian immigrants as perpetual ‘aliens ineligible for citizenship’” (Shah, 2001, p.37). The internment of Japanese Americans by the American government during World War II led to small infectious disease outbreaks in the internment camps, and also resulted in negative physical health consequences such as increased cardiovascular disease and psychological anguish, as well as feelings of vulnerability not only among the internees but also their children (Gee & Ro, 2009). In the 1930s, Los Angeles County and the California State public health departments submitted a resolution to Congress recommending a mass deportation of Filipinos, arguing that high rates of tuberculosis was overburdening the public health infrastructure, and that Filipino patients, who “carry many superstitions and often are mentally disturbed, make it miserable for white patients around them” (Abel, 2003).

The model minority narrative—originally coined by sociologist William Peterson—emerged in the latter twentieth century based on sociological and epidemiological studies comparing Japanese-Americans and whites, offering an incomplete perspective on the health of this diverse population (Flack, 1995). This racial transformation of Asian Americans from “disease-ridden foreigner” to healthy “model minority” in public health persists in part due to the preference of Asians to African Americans as schools and neighborhoods desegregate, and as the Immigration Act of 1965 allows more educated professionals from Asia (Brooks, 2009). This perception continues to prevail in public health despite accounts of other Asian Americans’ struggles, such as Fadiman’s research in “A Spirit Catches You and You Fall Down” (1999), which documents the Hmong community’s oppressive interactions with American public health system in a Merced, California. Finally, just as recent as the turn of the twenty-first century when the healthy model minority myth was pervasive, during the global epidemic of SARS (severe acute respiratory syndrome)—which was sometimes referred to as “Chinese flu” due the earliest cases being discovered in Asian countries—U.S. health agencies once again perpetuated feelings of anxiety and fear of Asian Americans and their communities, something the Centers for Disease Control and Prevention later admitted it could have done more to prevent (Eichelberger, 2007; Person, et al., 2004)

These examples highlight the varying and complex histories of different Asian American groups and their resulting health outcomes. Aggregating Asian Americans masks important differences in many sub-Asian ethnicities—a practice by health agencies that contributes to the social production of health inequities, and results in a lack of attention to strategies that promote health behaviors and social conditions to optimize community health for specific communities. For example, while 23% of Pakistani and Bangladeshi Americans lack health insurance, only 8% of Japanese Americans do (Trinh-Shevrin, 2009). And while 26% of Hmong Americans and 20% of Bangladeshi Americans live below the poverty line, only 6% of Filipinos and 8% of Indians do (Trinh-Shevrin, 2009). Asian Americans account for over half of deaths resulting from chronic Hepatitis B infection in the U.S (National Center for Health Statistics 2006). However, Chinese Americans are at six times higher risk of dying from liver cancer compared to

Caucasians, while Korean Americans are at eight times higher risk, and Vietnamese Americans are at 13 times higher risk. (National Center for Health Statistics 2006). Despite these disparities, several barriers and challenges have been documented with respect to accurately studying Asian Americans, and in effectively engaging Asian Americans to participate in research studies (Giuliano, 2000; Chen, 2005). As a result, Asian Americans have often been neglected with regard to targeted public health surveillance, health services, and federal allocation of resources (Ghosh, 2003; Wang, 2007).

Surveys suggest that the U.S. general population often sees Asian Americans as economically successful and as a healthy model minority (Tesung, 2009). Such a positive depiction can have a negative impact on communities (Zhou & Xiong, 2005). Many Asian Americans have come to falsely assume they have achieved socioeconomic parity with other ethnic/racial groups, when in reality studies demonstrate that Asian Americans are underrepresented, under-rewarded, and overexerted in the workforce and social hierarchy nationwide (Tesung, 2009). Other surveys reveal anti-Asian attitudes in economic power. For example, as one survey indicates, 25% of Americans believe Asians take too many jobs away from Americans. When asked which ethnic group Americans in general were ready to elect as president, Asians ranked the lowest, indicating a high resistance to potential Asian American political leadership. And when asked about intermarriage, 24% said they would disapprove if someone in their family were to marry an Asian American, compared to only 15% of Americans stating they would disapprove of intermarriage between blacks and whites. (Gee & Ro, 2009). In addition, the successful and problem-free portrayals of Asian Americans have fostered anti-Asian sentiment and anti-Asian violence in communities and universities due to a perception that foreigners are taking over various jobs and college campuses (Takaki, 1989; Tesung, 2009). While this myth has resulted in preferential treatment with respect to various opportunities in education, employment, and housing (Tesung, 2009), surveys of Asian Americans themselves, such as the California Health Interview Survey, the National Latino and Asian American Survey, the Commonwealth Survey, and newspaper polls, consistently reveal high rates of reports among Asians of experiencing discrimination (Gee & Ro, 2009). From a public health perspective, these formations of Asian American identity and membership manifest in social and political structures that shape the distribution of resources and opportunities impacting the health of Asian Americans, and warrant further attention.

### **Racial residential segregation: a fundamental cause of health inequities**

Social epidemiology—which is the study of the population distribution of the social determinants of health and how that distribution of those determinants affect health and health disparities—has identified racial residential segregation as a fundamental cause of health inequities in the U.S. Racial residential segregation (hereafter residential segregation) is known to affect the social, physical, and mental well-being of segregated minority groups in the United States (Williams & Collins, 2001). Residential segregation is non-randomly distributed across racial and ethnic groups and is correlated with a clustering of poor health outcomes in these same communities (Link & Phelan, 1995).

Few studies examining the relationship between residential segregation and health have focused on Asian Americans. However, data show that some Asian American groups experience considerable residential segregation (Iceland et al., 2010).

Examining the role of racial residential segregation and health requires a critical understanding of the constructs of “race” and “place”. Several Asian American subgroups tend to live in ethnic enclaves, which have arisen from a variety of factors including, but not limited to, discriminatory housing practices, as a refuge against racism (e.g. targeted violence), and as a place to develop a sense of community (Trinh-Shevrin, 2009). Studies have shown discrimination (e.g., housing discrimination) contributes to the segregation of Asian Americans (Turner, et al., 2003) which has had negative impacts to their health. Asian Americans living in extremely segregated neighborhoods have a 32 percent higher lifetime risk of cancer related to air toxins compared to those living in less segregated neighborhoods (Morello-Frosch & Jesdale, 2006). Segregation has also been associated with positive health outcomes such as reducing the likelihood of low-birth weight babies and the clustering of culturally-specific health care services (Walton, 2009; Gee, 2002).

Sociological and public health literature suggests that political empowerment is a hallmark of health promotion, especially for older adults and other isolated communities (Martinson & Minkler, 2006). Research has only begun to fully explore the complex pathways in which neighborhood contexts, including the ways that living in ethnic neighborhoods may actually serve to be protective, rather than just detrimental to health (Walton, 2011). While studies suggest that high-degrees of segregation have enabled political power in Black communities as a mechanism to counter the negative effects of isolation (LaVeist, 1993), much less is known about the effect of segregation on the political and social capital of Asian Americans and its benefits to health, especially given its diversity of identities, cultures, nativity and length of time living in the U.S.

Identifying the positive effects of residential segregation will help elucidate asset-based approaches to improving the health of segregated communities. Future studies on segregation and health are needed to test mediating pathways and effect modification, explore factors of resilience in segregated areas, investigate nativity status in racial/ethnic groups, and link with biological data (White & Borrell, 2011). Asian Americans are now the fastest growing population in the country (Hoeffel, 2012). Given the paucity in the literature examining the role of residential segregation and Asian American health, studying Asian Americans and the contextual effects of living in an Asian ethnic neighborhoods or non-Asian neighborhoods provides an opportunity to understand the impact of residential segregation as a social determinant of Asian American health and identify opportunities for health promotion and disease prevention interventions in specific Asian American communities that may be disproportionately affected.

## Research Objectives

In this dissertation, I ask:

- 1) What are the potential mechanisms by which racial segregation is associated with physical and mental health status among Asian Americans in the United States?
- 2) How does social capital and political empowerment moderate the association of racial residential segregation and self-rated mental health status among Asian Americans?
- 3) How can building political empowerment be utilized by public health departments to address the effects of racial residential segregation and the health of Asian Americans?

Paper #1 examines the empirical evidence of the association between residential segregation and Asian American health by critically reviewing the literature with a relational geography lens, and is one of the first papers to examine this literature. Paper #2 empirically tests the role of residential segregation on health status of Asian Americans and the moderating roles of social capital and collective political participation. To do so, I employ multilevel modeling methods using the *California Health Interview Survey* (2011-12). Paper #3 studies the role of political empowerment in addressing segregation and health, and utilizes comparative multi-site case-study design, key informant interviews, participant observations, and document reviews in California counties with high Asian-white residential segregation. Specifically, I document examples of collective political empowerment, and discuss the role of health practitioners—particularly those employed at local health departments—in building political empowerment as a health promotion and equity strategy.

## REFERENCES

1. Abel, E.K. (2003). "Only the best class of immigration": Public health policy toward Mexicans and Filipinos in Los Angeles, 1910-1940. *Am J Public Health*, 94: 932-939.
2. Baldwin, P. (2002). Contagious Divides: Epidemics and Race in San Francisco's Chinatown. *JAMA: The Journal of the American Medical Association*, 288(1), 447-512.
3. Brooks, C. (2009). *Alien neighbors, foreign friends: Asian Americans, housing, and the transformation of urban California*. University of Chicago Press.
4. Chase, M. (2004). *The Barbary plague: the black death in Victorian San Francisco*. Random House Trade Paperbacks.
5. Chen, H., Kramer, E. J., Chen, T., & Chung, H. (2005). Engaging Asian Americans for mental health research: challenges and solutions. *Journal of Immigrant Health*, 7(2), 109-118.
6. Drapeau, A., Beaulieu-Prevost, D., Marchand, A., Boyer, R., Preville, M., Kairouz, S. (2010). A life-course and time perspective on the construct validity of psychological

- distress in women and men. Measurement invariance of the K6 across gender. *BMC Medical Research Methodology*, 10: 68.
7. Gee, G. (2002). A multilevel analysis of the relationship between institutional and individual racial discrimination and health status. *American Journal of Public Health*, 92: 615-623.
  8. Gee, G. & Ro, A. (2009). Racism and Discrimination. In *Asian American Communities and Health*. Trinh-Shevrin C, Islam NS, Rey MJ (ed.) Josey Bass: San Francisco, 364-395.
  9. Fadiman, A. (1997). *The spirit catches you and you fall down: A Hmong child, her American doctors, and the collision of two cultures*. Macmillan.
  10. Ghosh, C. (2003). Healthy People 2010 and Asian Americans/Pacific Islanders: defining a baseline of information. *American journal of public health*, 93(12):2093-2098.
  11. Giuliano, A. R., Mokuau, N., Hughes, C., Tortolero-Luna, G., Risendal, B., Ho, R., & Mccaskill-Stevens, W. J. (2000). Participation of minorities in cancer research: the influence of structural, cultural, and linguistic factors. *Annals of epidemiology*, 10(8), S22-S34.
  12. Healthy People 2020. (2011). Goals and Objectives: Social Determinants of Health. Department of Health and Human Services, accessed on December 8, 2011 at <http://healthypeople.gov/2020/topicsobjectives2020/overview.aspx?topicid=39>
  13. Flack, J.M., Amaro, H., Jenkins, W., Kunitz, S., Levy, J., Mixon, M., Yu, E. (1995). Epidemiology of minority health. *Health Psychology*, 14(7), 592-600.
  14. Hoeffel, E.M., Rastogi, S., Kim, M.O., Shahid, H. Issued: March 2012. The Asian Population: 2010. *The Census Briefs*. U.S. Department of Commerce, Economics and Statistics Administration. United States Census Bureau.
  15. Iceland, J., Goyette, K. A., Nelson, K. A., & Chan, C. (2010). Racial and ethnic residential segregation and household structure: A research note. *Social Science Research*, 39(1), 39-47.
  16. LaVeist, T. A. (1993). Segregation, poverty, and empowerment: health consequences for African Americans. *The Milbank Quarterly*, 41-64.
  17. Link, B. G., & Phelan, J. (1995). Social conditions as fundamental causes of disease. *Journal of health and social behavior*, 80-94.
  18. Martinson, M., & Minkler, M. (2006). Civic engagement and older adults: A critical perspective. *The Gerontologist*, 46(3), 318-324.
  19. Morello-Frosch, R. & Jesdale, B.M. (2006). Separate and Unequal: Residential Segregation and Estimated Cancer Risks Associated with Ambient Air Toxics in U.S. Metropolitan Areas. *Environmental Health Perspectives*, 114(3), 386-393.
  20. National Center for Health Statistics (NCHS), *Health U.S.*, (2006). [Table 27](http://www.cdc.gov/nchs/data/hus/06.pdf#027) accessible at [http://www.cdc.gov/nchs/data/06.pdf#027](http://www.cdc.gov/nchs/data/hus/06.pdf#027)
  21. Person, B., Sy, F., Holton, K.S., Covert, B., Liang, A. & NCID/ SARS Community Outreach Team. (2004). Fear and stigma: The epidemic within the SARS outbreak. *Emerging Infectious Diseases*, 10, 358–363.
  22. Shah, N. (2001). *Contagious Divides: Epidemics and Race in San Francisco's Chinatown* (Vol. 7). Univ of California Press.
  23. Takaki, R. (1989). *Strangers from a different shore: A history of Asian Americans*. New York: Little, Brown. Trinh-Shevrin, C., Islam, N. S., & Rey, M. J. (Eds.).

- (2009). *Asian American communities and health: Context, research, policy, and action* (Vol. 22). Jossey-Bass.
24. Tseung, W. (2009). Social, Demographic, and Cultural Characteristics of Asian Americans, (p.23-49) in Trinh- Shevrin, C., Islam, N. S., & Rey, M. J. (Eds.). (2009). *Asian American communities and health: Context, research, policy, and action* (Vol. 22). Jossey-Bass.
25. Turner, M. A. (2002). Discrimination in metropolitan housing markets: National results from phase I of HDS2000.
26. Walton, E. (2009). Residential segregation and birth weight among racial and ethnic minorities in the United States. *Journal of health and social behavior*, 50(4), 427-442.
27. Wang, J., Miller, N. A., Hufstader, M. A., & Bian, Y. (2007). The health status of asian Americans and pacific islanders and their access to health services. *Social Work in Public Health*, 23(1), 15-43.
28. White, K., & Borrell, L. N. (2011). Racial/ethnic residential segregation: framing the context of health risk and health disparities. *Health & place*, 17(2), 438-448.
29. Williams, D. R., & Collins, C. (2001). Racial residential segregation: a fundamental cause of racial disparities in health. *Public Health Reports*, 116(5): 404-416.
30. Zhou, M., & Xiong, Y. S. (2005). The multifaceted American experiences of the children of Asian immigrants: Lessons for segmented assimilation. *Ethnic and Racial Studies*, 28(6), 1119-1152.



# Racial Residential Segregation and Asian American Health: A Critical Review with a Relational Lens

**ABSTRACT:** Asian Americans are now the fastest growing racial group in the US, and the 2010 census data also show that Asian Americans are becoming more residentially segregated. Despite the growing recognition that racial residential segregation is a fundamental cause of health inequities in society, few studies have examined the relationship between segregation and health among Asian Americans. This paper examines the associations between racial residential segregation and the health status of Asian Americans by systematically and critically examining the evidence in the published epidemiological and sociological literature using a relational lens. Our review suggests that associations between racial residential segregation and health are mixed, demonstrating both beneficial and deleterious health effects. We discuss the implications for further research, including suggestions to incorporate “relational” aspects to residential segregation such as historical, cultural, and political health determinants.

## INTRODUCTION

According to the 2010 Census, Asian Americans are now the fastest growing racial group in the U.S., a dynamic that increases the significance of their health to overall population health. Surveys suggest that the U.S. general population often sees Asian Americans as economically successful and as a healthy “model minority” (Tesung, 2009). Such a depiction has had a negative impact on the allocation of public resources, including efforts to study the health inequities experienced by Asian Americans (Gee & Ro, 2009). Aggregating Asian Americans masks important disparities in many sub-Asian ethnicities—a common practice across several social and health agencies—and results in a lack of attention to public health strategies to optimize community health for specific communities. For example, while 26% of Hmong Americans and 20% of Bangladeshi Americans live below the poverty line, only 6% of Filipinos and 8% of Indians do (Trinh-Shevrin, 2009). Asian Americans account for over half of deaths resulting from chronic Hepatitis B infection in the U.S (National Center for Health Statistics 2006). However, Chinese Americans are at six times higher risk of dying from liver cancer compared to whites, while Korean Americans are at eight times higher risk, and Vietnamese Americans are at 13 times higher risk. (National Center for Health Statistics 2006).

A consequence of a rapidly growing Asian American population is that Asian Americans are becoming more residentially segregated (Iceland, 2010; Logan, 2011). Racial residential segregation is recognized as a fundamental cause of social inequities as well as physical and mental health inequities by race (Williams & Collins, 2001). Residential segregation increases exposure to a variety of adverse social and environmental

conditions such as crime, substandard housing, decreased employment and economic opportunities, lower quality schools, limited social networks, increased substance use and availability, and toxic air pollutants (Williams & Collins, 2001; Acevedo-Garcia & Lochner, 2003; LaVeist, 2011). For some racial groups, residential segregation also concentrates exposure to resources that enhance health, including cultural networks, economic opportunities, grocery stores and parks (White & Borrell, 2011). However, much less is known about the health promoting aspects of residential segregation, especially among Asian Americans. Additionally, the majority of the segregation-health literature has focused on Black Americans. Although there is some evidence suggesting that these dynamics impact multiple segregated minority groups, including Asians, whether and to what extent these dynamics hold among Asian Americans is unclear. Given increasing recognition of the role of place in impacting health disparities, understanding how segregation impacts the health of Asian Americans has become increasingly important not only for Asian Americans but also for the effectiveness of public health efforts aimed at improving population health more broadly.

This paper examines the associations between racial residential segregation and the health status of Asian Americans in the U.S. by systematically and critically assessing the evidence in the published epidemiological and sociological literature. This paper expands upon and responds to several important and recent literature reviews on the health effects of racial segregation (Acevedo-Garcia et al., 2003; Kramer & Hogue, 2009; Landrine & Corral, 2009; and White & Borrell, 2011) by concentrating exclusively on Asian Americans, an under-addressed but important population in this area of research (Acevedo-Garcia et al., 2003; White & Borrell, 2011). To begin, we emphasized both theoretical frameworks and methods used to understand proposed pathways to health. In particular, we reviewed the literature in light of a more relational view of *place*, drawing from relational perspectives of geography emphasizing not just the physical but also the social meaning of neighborhoods. In our analysis and conclusions, implications for further research and public health practice are considered.

### ***Asian American neighborhoods: Ethnic Enclaves or Segregated Spaces?***

Asian Americans have become more residentially segregated from whites over the past 30 years (Logan & Zhang, 2013). This demographic shift may have significant implications for population health in general, and health inequities more specifically. Metropolitan areas with the greatest growth in Asian populations also experience the greatest Asian-White segregation, potentially resulting in highly concentrated ethnic enclaves (Iceland & Scopilliti, 2008). In addition, the most recent census data show that on average Asians are increasingly living in poorer neighborhoods than whites (Logan, 2011). These data suggest that increasing Asian-White segregation may be associated with the concentration of poverty among Asians. A 2013 report by the National Coalition for Asian Pacific American Community Development found that during the recent recession Asian American poverty increased 37%, higher than the total U.S. poverty population (27%). Asian Americans are not only the most geographically concentrated poverty population (over a third of all poor Asian Americans live within only three Metropolitan Statistical Areas), but are also more concentrated in the largest

metropolitan areas compared with any other racial group. Furthermore, the Asian American poor disproportionately live in metropolitan areas with the highest housing costs. Nearly 50% of the country's Asian American poor live in the country's 20 most expensive real estate markets, including San Jose-Sunnydale-Santa Clara, CA, Anaheim-Santa Ana-Irvine, CA, and San Francisco-Oakland-Fremont, CA. No other poverty population is as significantly concentrated in these most expensive real estate markets, potentially fueling disparities in homeownership and compounding the problems of living in poverty (11% of the total White US poverty population, 15% of the total Black poverty population, and 27% of the total Hispanic poverty population live in the top 20 most expensive MSAs). 71% of poor Asians live in places where they cluster around other Asian Americans neighborhoods, suggesting that race, regardless of class, is an important segmenting factor. Across numerous metropolitan areas, Asians have substantially lower incomes than do whites; and even when their incomes are closer to that of whites, they live in neighborhoods of lower quality (Logan, 2011).

Although immigration contributes to increased levels of Asian-White segregation due to the preference of newly arrived immigrants to first live amongst co-ethnics, evidence suggests that racial discrimination at both the interpersonal and institutional levels is a key factor leading to residential segregation among Asians. In a study of Los Angeles homebuyers, one in five Asians report that they encountered discrimination when speaking a native language to purchase a home (Gee, 2002). Literature suggests that discrimination is a significant source of distress among Asian Americans, with those reporting racial discrimination also reporting more alcohol abuse and tobacco use (Gee, Delva, & Takeuchi, 2007; Chae et al., 2008), indicating the adverse effects of discrimination for both mental and physical well being. Furthermore, Asians appear to be more likely than whites and Latinos to live in counties that violate the Environmental Protection Agency's standards for safe levels of small air particles (Gee, 2002), which suggests a role for discrimination in determining patterns of racial segregation, and place-based health inequities more broadly.

Although segregation is associated with numerous health-damaging effects, segregated Asian neighborhoods may also provide protections to recently-arrived ethnic groups by buffering acculturative stress, providing access to culturally appropriate services and country-of-origin foods, and limiting stigmatizing inter-racial interactions (Mason et al., 2011; Lieberman, 1961; Duany, 1998). Thus segregation may support healthy group norms, a sense of social cohesion, and less exposure to stigmatizing interactions. Furthermore, while studies suggest that high-degrees of segregation have enabled political power in Black communities as a mechanism to counter the negative effects of isolation, much less is known about the effect of segregation on the political and social capital of Asian Americans and its benefits to health, especially given its diversity of identities, cultures, nativity and length of time living in the U.S.

Finally, when looking more closely at Asian American neighborhoods by ethnic and economic subgroups, there are notable variations. Asian American neighborhoods in the U.S. have received a variety of general descriptors, including "minority ghettos," "immigrant enclaves," and "ethnic communities" as well as specific names as

“Koreatown,” “Chinatown”, and “Little India” (Gee & Ro, 2009). These neighborhoods are markedly distinct due to varying countries of origin, cultural practices, and familial structure, as well as by location (urban, suburban, rural), socioeconomic position (immigration or refugee status, employment status, types of occupation, and education) and political history (resulting from civil or international conflict, dictatorships or political oppression). For example, in the Los Angeles’s suburban San Gabriel Valley, the most affluent neighborhoods tend to have more East Asians (Chinese, Japanese, Korean) and fewer Southeast Asians (Vietnamese, Filipino, Cambodian), while Southeast Asians tend to reside in less affluent suburbs (Choskwanyun & Segall, 2012). Scholarship has largely ignored these differences, limiting our understanding of health- protective and -damaging neighborhood features.

A Pew Center (2012) report, which contrasted the “residential enclaves” and “other Asian communities in cities” of the past with the residential assimilation of Asians in the present, stated: “Asian Americans are much more likely than any other racial group to live in a racially mixed neighborhood. Just 11 percent currently live in a census tract in which Asian Americans are a majority”.

Arguably, these generalizations are misleading. Despite sustained immigration, Asians are a much smaller proportion of the American population than blacks or Latinos, so it’s not surprising that in the national aggregate, only 11 percent live in a majority-Asian tract. These geographic generalizations also tend to fall apart with a more granular focus. Data from a San Gabriel Valley study contradicts the notion that “residential enclaves,” for at least some Asians, are a thing of the past (Choskwanyun & Segall, 2012). While just 19.6 percent of Asian households live in Census tracts with Asian household percentages of 25 percent or more, and only 5.7 percent in majority-Asian places, historical trends are increasing enough to suggest that concentrated Asian neighborhoods will continue to grow. Given the gaps in the literature and the recent growth of the Asian American neighborhoods, further research is needed to understand the complex association between residential segregation and its potential pathways to health status.

### ***Towards a Relational View of Neighborhood Ethnic Segregation***

Rather than the more traditional approach of separating context (place) and composition (people), incorporating a relational view of place has been proposed and discussed by scholars as an approach to better understand the social and historical meaning of place and its implications for population health. A relational view of place emphasizes that the “physical and social characteristics in space matter for well-being, but these features cannot be separated from the meaning that people in different places assign to these characteristics” (Corburn, 2009); or from the ways in which people’s daily interactions with the physical and social characteristics of place constantly define and redefine those very characteristics. As a result, those interactions result in the people-place relationship being consistently transformative for both people and for place itself. Efforts to promote or study the effects of place on people’s health should address the “physical features of the environment shared by all residents in a locality”; “availability of healthy environments [across contexts] at home, work, and play”; “services provided, publicly

and privately to support people in their daily lives”; “socio-cultural features of a neighborhood”; and “the reputation of an area” (Macintyre, 2002). It should also consider the role of political institutions that shape places and population access to resources (Corburn, 2009). We used a relational approach to this literature review by critically examining research in light of the factors outlined above, considering the strengths and limitations of various research methods, and identifying whether aspects of place such as political power and access to health-promoting resources addressed or discussed.

Health researchers have only begun to explore the complex pathways in which living in ethnic neighborhoods may actually serve to be protective rather than just detrimental to health. Numerous researchers suggest the use of mixed methods in exploring the complex associations between racial residential segregation and health. Cummins and colleagues (2007), and other leading urban health scholars (Galea & Schultz, 2006) operationalize these themes by suggesting the use multiple methods (quantitative and qualitative) in exploring the multi-level (e.g., contextual (neighborhood-based) and compositional (individual-based) effects of place on population health. A “relational” approach includes treating space in different scales, incorporating the social and cultural meaning of place by residents, how people move about an area over time, and structures of power, assets, and deprivation (Cummins, et al., 2007). We applied this approach to our review of the literature.

## **METHODS**

We conducted an interdisciplinary literature search using PubMed, PsycINFO, CSA Sociological Abstracts, and Web of Science (ISI Web of Knowledge) and variations of the following search terms: “racial segregation”, “residential segregation”, and “ethnic enclave.” Inclusion criteria were: 1) investigated an association between segregation and a health outcome, determinant, or behavior; 2) broadly considered a public health research study (e.g., used quantitative-, qualitative-, or mixed- methods, or applied socio-ecological or public health frameworks); and 3) focus on populations in the U.S. Our initial search returned 2,425 articles. A search for the terms “Asian” or “Asian American” in the abstracts, as well as a qualitative scan of abstracts for Asian ethnicities (such as “Chinese”, “Vietnamese”, “Filipino”, “Korean”, “Japanese”) further limited the sample to 257 articles. The overwhelming majority (>90%) of the studies investigated Black or African American populations. After a more in-depth qualitative assessment of the remaining articles, and removal of duplicate articles, six articles were identified for inclusion, reflecting the dearth of research in this area. Subsequently the same search terms were used in Google Scholar, but did not find any new articles.

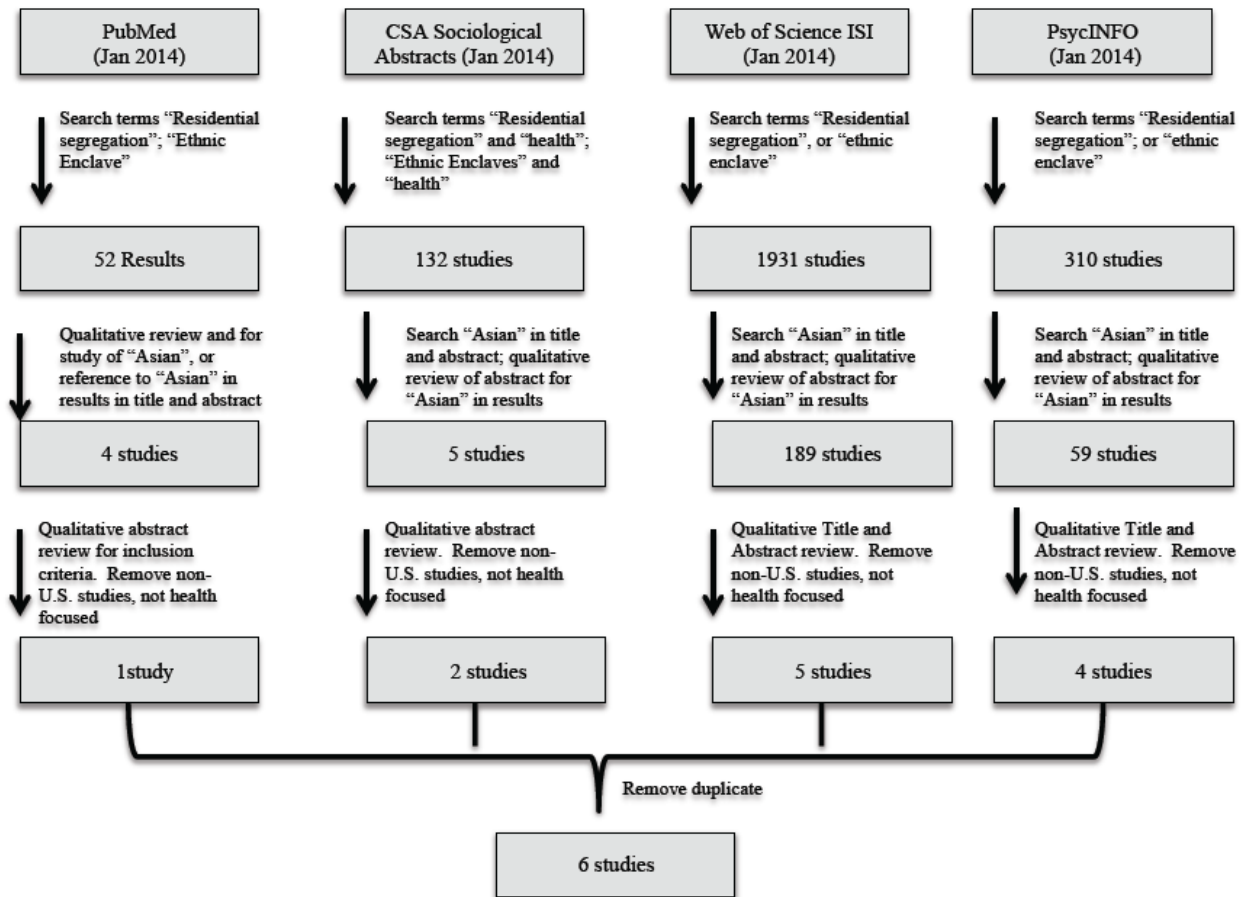


Figure 1. Literature Search and Findings

## RESULTS

### Summary of Findings: Scope, Scale, and Social Theory

Table 1 provides an overview of the six studies identified for inclusion. Below, we provide a descriptive overview of the six studies including the research aims and major findings of each study. We highlight whether a theoretical framework was made explicit and later discuss the role of theory in understanding the associations between segregation and health among Asian Americans. We examine how racial residential segregation and health outcomes are measured, and what factors were found to influence associations between segregation and health. Following this descriptive discussion, we apply a 'relational view of place', highlighting important theoretical and methodological implications for interpreting the current literature, as well as for suggesting important influencing factors and next steps in future research.

Asian Americans, when compared to other racial ethnic groups, appear to be moderately but increasingly more segregated. The health outcomes varied across the six studies. One study assessed the relationship of interpersonal racial discrimination

and racial residential segregation with measures of general physical health and psychological distress among Chinese Americans living in redlined areas of Los Angeles (Gee, 2002). Those who lived in redlined areas reported better mental health compared to those who lived in other areas of the city, while self-reported racial discrimination at the individual level predicted poor health status (Gee, 2002). Two studies examined exposure to outdoor air pollutants among racial and ethnic minorities living in segregated neighborhoods compared to whites living in those same areas. Morello-Frosch & Jesdale (2006) found that Asian Pacific Islanders living in extremely segregated (i.e., multi-group dissimilarity index >0.4) neighborhoods had a 32 percent higher relative risk of cancer related to air pollution compared to those living in less segregated neighborhoods. Downey et al. (2008) determined that Asian Americans generally experience low to moderate outdoor air pollution exposure burden relative to most other racial groups in the same metropolitan area, but experience a high pollution disadvantage relative to Pacific Islanders and Native Americans.

Two additional studies modeled the association of racial residential segregation with maternal and child health indicators including birth weight and pre-term birth. Walton (2009) found that residentially isolated Asian Americans had significantly lower odds of having a low birth weight baby, compared to less residentially segregated Asian American in U.S. metropolitan areas. Mason (2011) reported that residential segregation was associated with lower risk of preterm birth among most Asian subgroups compared to less residentially isolated Asian Americans in the same large, urban city. The most recent study in our review, by Gaskin (2012), examined the role of racial residential segregation and access to primary care physicians (PCP) and observed that as the degree of segregation increased, the odds of being a PCP shortage area increased for majority Black zip codes while the converse was true for majority Asian (and Hispanic) zip codes.

Table 1. Summary Table of Racial Residential Segregation and Health of Asian Americans

Title	Author(s)	Study Aim(s)	Theoretical Framework	Study Design/ Methods (Data Source) and Sample Size	Segregation Measure(s); Scale	Outcome (Measurement)	Moderators/ Covariates	Key Findings
Residential Segregation and the Availability of Primary Care Physicians	<i>Gaskin FJ, Dinwiddie GY, Chan KS, McCleary RR (2012)</i>	To examine the association between residential segregation and geographic access to primary care physicians (PCPs) in metropolitan statistical areas.	Fundamental Cause Theory; Economic Theory	Cross-sectional ecologic study; logistic regression (American Medical Association master file; U.S. Census)  Sample size= 15,465 zip codes.	Dissimilarity, isolation, clustering, centralization, concentration. Majority minority zip codes to MSAs	Access to Primary Care Physicians (PCP) shortage areas. Unit of analysis is zip codes where population to PCP ration was >3500:1, located within a MSA.	Demographic data: percent female, racial, and age distributions.  Socioeconomic variables: poverty status, educational attainment, and home ownership	As the degree of segregation increased, the odds of being a PCP shortage area increased for majority Black zip codes; the converse was true for majority Hispanic and Asian zip codes.
Neighborhood Ethnic Density and Preterm Birth across Seven Ethnic Groups in New York City	<i>Mason, Susa M, Kaufman JS, Daniels JL, Emch ME, Hogan VK, Savitz DA (2011)</i>	To increase understanding of the segregation-health relationship by examining preterm birth risk among understudied ethnic groups.	None	Cross-sectional; multivariate regression; (NYC DOH Birth Records; U.S. Census)  Sample size: n=95,727 in 2,156 NYC census tracts.	Proximity-weighted ethnic density; census tracts within city	Pre-term birth (birth after 20 <sup>th</sup> week and prior to 37 <sup>th</sup> week)	Residential-stability and neighborhood deprivation;  Individual level: race and ethnicity, maternal age; education; nativity; tobacco use; pregnancy weight; prenatal care	Reduction in preterm birth risk among most Hispanic and Asian subgroups; the associations between ethnic density and preterm birth appeared to be null or slightly protective.
Residential segregation and birth weight among racial and ethnic minorities in the United States	<i>Walton, E. (2009)</i>	To assess the effects of residential segregation on birth weight among Asian, Latino, and Black women residing in U.S. metropolitan areas.	Spatial Assimilation; Place Stratification	Cross-sectional, multi-level, logistic regression (National Center for Health Statistics Natality Files; U.S. Census)  Sample size: N= 147,082 Asian Americans in 144 Metropolitan Areas	1) Isolation ; 2) Clustering; Census tracts-MSA	Low-birth weight as an indicator of women's health	Level 2: Minority affluence (Asian) or poverty (Latino and Black models)  Individual level: mother's age, number of prior births.	Residence in metropolitan areas in which Asian Americans are more residentially isolated results in significantly lower odds of having a low birth weight baby. Asian American affluence does not remove the protective effects of residential isolation on birth weight.
Environmental Inequality in Metropolitan America	<i>Downey L, Dubois S, Hawkins B, Walker</i>	To examine the role that residential segregation and racial income inequality play in	None	Cross-sectional; logistic regression (EPA Risk-Screening Environmental	Multi-group Dissimilarity Index	Pollution hazard burden (based on EPA models of toxicity-weighted	Income inequality	Residential segregation is associated with both an increase and decrease in racial/ethnic group proximity to environmental hazards. When Asian



	M. (2008)	producing environmental inequality experienced by Blacks, Hispanics, Pacific Islanders, Native Americans, Asian Americans, and Whites in each of the 329 metropolitan areas in the continental United States.		Indicators Project; U.S. Census)  Sample size: 329 U.S. Metropolitan Areas		concentration of air pollutants released from every facility listed in EPA's 2000 Toxics Release Inventory)	(ration of group's median household income to the medial household income of all households in the metro area)	Americans experience a pollution disadvantage relative to other racial groups, their disadvantage tends to be in the low and medium ranges, but they experience a high pollution disadvantage relative to Pacific Islanders and Native Americans, in particular. Asian Americans were the most pollution disadvantaged in 11% of the 329 U.S. metropolitan statistical areas, although most studies ignore Asian American experiences.
Separate and Unequal: Residential Segregation and Estimated Cancer Risks Associated with Ambient Air Toxics in U.S. Metropolitan Areas	Morello-Frosch R, Jesdale B (2006)	To examine the links between racial residential segregation and estimated ambient air toxics exposures and their associated cancer risks	Stress-Exposure Disease Framework (Gee & Payne-Sturges, 2004)	Regression analysis using MA-wide criteria air pollutants levels (EPA National Air Toxics Assessment; U.S. Census)  Source: 309 Metropolitan Areas encompassing 45,710 tracts and 6,069,605 non-Hispanic Asians and Pacific Islanders	Multi-group Dissimilarity Index at the Census – MSA levels	Cancer risks associated with ambient air toxic exposure	Continental geographic region; population density; population size; poverty and material deprivation; civic engagement (voter turnout)	APIs living in extremely segregated neighborhoods had a 32 percent higher relative risk of cancer related to air pollution compared to those living in less segregated neighborhoods
A Multilevel Analysis of the Relationship between Institutional and Individual Racial Discrimination and Health Status	Gee, Gilbert C. (2002)	Examined whether self-perceived discrimination and institutional (segregation and redlining) racial discrimination was associated with poor health status among members of an ethnic group.	None	Multilevel modeling and logistic regression (Chinese American Psychiatric Epidemiologic Study; US. Census; Home Mortgage Disclosure Act database).  Sample Size: n=1503 Chinese-Americans in 36 Los Angles census tracts	Dissimilarity; census tracts	1) General physical health (Three scales of Medical Outcomes Study Short Form-36; 2) Psychological Symptom Patterns (revised Symptom Checklist 90 (SCL-90-R)	Acculturation, SES, and social support were measured as potential contributors to the relationship between racial discrimination and health.	Self-reported racial discrimination at the individual level predicted poor health status whereas redlining and segregation predicted better health status.

**Theoretical Frameworks.** Two theories have largely influenced the research on how residential segregation affects health status among Asian Americans according to this review. The first, spatial assimilation theory, suggests that newly arrived immigrants, constrained by language and cultural barriers as well as labor and housing markets, cluster in co- or mixed- ethnic enclaves allowing cultural assimilation and inter-ethnic relationships to gain better access to non-ethnic specific labor and housing markets (Wen, 2009; Alba and Nee, 2003). Thus, enclaves can have social as well as health advantages (Walton, 2012). Place stratification theory, on the other hand, contends that low socioeconomic position is maintained through institutional and interpersonal discrimination, leading to immigrant ghettos, and has negative effects on health (Walton 2012; Massey and Denton 1993).

Additional theories included Fundamental Cause theory and the Stress-Exposure Disease Framework. Fundamental Cause Theory is rooted in Place Stratification Theory, based on the premise that origins of inequalities such as sociological theories of stratification provide a basis for understanding how “flexible resources such as knowledge, money, power, prestige, and beneficial social connections might facilitate the creation of new mechanisms linking SES and health” (Phelan et al., 2010). (In a classic example, an individual with more resources is better able to maintain a healthy lifestyle, get quality medical treatment, and access higher-resourced community networks and resources (Phelan et al., 2010)). The study by Morello-Frosch & Jesdale (2006) used the Stress-Exposure Disease Framework (Gee & Payne-Sturge’s, 2004), initially developed to marry concepts in Fundamental Causes Theory, and several environmental justice research concepts. Downey et al. (2008) inexplicitly incorporate environmental justice principles as an overarching framework, e.g., that environmental health-related inequalities are a function of institutionalized racism and a market economy that favors economic expansion over interests of vulnerable populations (e.g., the poor, racial and ethnic minorities, or blue collar laborers) (Brulle & Pellow, 2006). While three studies did not explicitly specify an underlying theoretical framework, the studies by Gee (2002) and Mason (2011) conceptually distinguish the mechanisms for how the residential context may enhance and harm the health of segregated residents.

**Measures of Racial Residential Segregation.** Racial residential segregation is a multidimensional concept that considers a population’s composition and spatial distribution across two scales of geography, such as a neighborhood and its corresponding city or metropolitan region . Massey and Denton (1988) performed an extensive literature search and cluster analysis to identify 20 different indices of segregation and classified them into five different dimensions: evenness, exposure, concentration, clustering, and centralization. Evenness refers to the distribution of Asians (or another given minority group) and Whites across neighborhoods in a given region (such as a metropolitan area), and the degree to which that distribution deviates from the distribution of Asians and whites of the region overall (Acevedo-Garcia et al., 2003). Exposure, alternatively referred to as isolation, is defined as the extent to which minority and majority members physically encounter one another by virtue of sharing a common residential area (Massey & Denton, 1988, p. 288). Concentration refers to the

relative amount of physical space occupied by a minority group in the urban environment. Clustering, is the extent to which areal units (e.g., census tracts) inhabited by minority members adjoin one another, or cluster, in space. A high degree of clustering indicates a racial or ethnic enclave (Iceland, 2002). Finally, centralization is the degree to which a group is spatially located near the center of an urban area.

Five of the six studies operationalized residential segregation with one of these more formal measures rather than proxy measures, such as ethnic density. “Racial composition may not always be a true reflection of segregation per se, because segregation is a contextual measure that depends on the relationship between racial groups in neighborhoods (e.g., census tracts) across a larger geographic area (e.g., metropolitan area). Thus, whereas percent minority reflects the composition of a particular neighborhood, it does not assess whether a metropolitan area’s organization reflects broader patterns of racial inequality (Morello-Frosch & Jesdale, 2006).” Gee (2002), Morello-Frosch & Jesdale (2006), and Downey et al. (2008) used the index of dissimilarity, a measure of evenness, and the most commonly operationalized measure of residential segregation in the literature. Gaskin (2010) included measures for all five dimensions of residential segregation, while Walton (2009) measured the exposure and clustering dimensions. Only Mason et al. (2011) did not implore a formal measure of residential segregation, and instead calculated neighborhood ethnic density measures, defined as the percentage of the population in one’s area of residence with a given ethnic identity. Assuming that the areas nearest a resident contributes most to his or her experience of neighborhood-level ethnic density, this proxy measure incorporated a geographic “proximity-weight” to allow for the influence of physical distance, with closer ethnic neighborhoods having more influence than further ethnic neighborhoods (Mason et al., 2011).

Similarly, the studies in this review were consistent with regards to the scales by which residential segregation was operationalized. Five studies used census tracts as the scale for neighborhoods, while one study used zip codes in order to be consistent with the data sources in its study. Five studies used Metropolitan Statistical Areas as the macro-area unit, whereas one study confined the macro-area to a large, urban city.

### ***Associations between Segregation and Health.***

Evidence of the association between racial residential segregation and health for Asian Americans is mixed, with slightly more evidence suggesting that residential segregation does not result in the same negative health effects among Asian Americans as that more commonly observed in Blacks and in some Latino neighborhoods. Residential segregation was found to be a relatively weak predictor of environmental air pollutants exposure for Asian Americans. In one study, segregated Asian Americans experienced a low to moderate air pollution exposure burden relative to most other segregated racial and ethnic groups, including whites (Downey et al., 2008). In another study, Asians living in extremely segregated neighborhoods not only had a 32 percent higher relative risk of cancer related to air pollution, this relationship also showed a gradient (dose-response) across three levels of segregation levels, and not affected by area-level

poverty suggesting that segregation affects pollution burdens independent of area-level poverty. (Morello-Frosch & Jesdale, 2006). For Asian Americans, living in a more residentially isolated neighborhood of a metropolitan area appeared to be protective (lower odds) of having a low-birth weight baby (Walton, 2009). The mediating effect of Asian American affluence at the metropolitan area was not significant, indicating that Asian American affluence does not remove the beneficial effects of residential isolation on birthweight (Walton, 2009).

Self-reported racial discrimination at the individual level predicted poorer mental health status and higher levels of psychological symptomatology for Chinese Americans, whereas residing in a redlined neighborhood predicted slightly better physical and mental health status (Gee, 2002). The author contends that segregation may reflect an ethnic enclave effect—whereby “segregation in ethnic enclaves may help to ameliorate ‘culture shock’ and other stressors, including discrimination...In the case of Chinese Americans, segregation may represent the clustering of resources, not stressors” (Gee, 2002). Data from this study may suggest individual-level discrimination influences individual health status more than institutional forms of discrimination, such as residential segregation, but should not imply that they trump institutional ones, as institutional factors may have important impacts on group outcomes that drive population-level disparities (Gee, 2002). “Interestingly, individual discrimination had no significant relationship to general health, whereas redlining did exhibit such a relationship, suggesting that institutional discrimination may influence health in the absence of individual recognition of discrimination (Gee, 2002).

In a national study examining the role of residential segregation and access to primary care physicians (PCPs), the odds of being a PCP shortage area were 67 percent higher for majority Black zip codes, 27 percent lower for majority Hispanic zip codes, and showed no effect for predominantly Asian American zip codes (Gaskin, 2012). The associations varied by degree of segregation. As the degree of segregation increased, the odds of being a PCP shortage area increased for majority Black zip codes; however the converse was true for majority Hispanic and Asian zip codes. Possible explanations, suggested by the authors, were that because of the over-representation of Asian American providers relative to the proportion of Asian Americans in the population (5.7 vs. 3.9 %, respectively), they may be more likely to practice in neighborhoods where Asians are highly segregated (Gaskin, 2012). Furthermore, the authors posit, “some Asian physicians may feel a sense of responsibility to serve Asian communities, and their service may reflect a level of cohesion within Asian communities. Their language skills may also encourage them to settle and practice in locales with language-concordant populations. Thus, segregation may be reflective of barriers that Asian physicians, particularly those who are non-native, face professionally, or conversely, the opportunities available to Asian physicians within Asian neighborhoods” (Gaskin, 2012, p.2369).

A New York City study examining the association of segregation and preterm birth suggested two important distinctions: 1) the beneficial and harmful psychosocial associations with segregation differs across ethnic groups; and 2) that more recently-

arrived groups--e.g., Asian and Latino ethnic groups--experience a protective effect, especially in poorer neighborhoods (Mason, 2011). The authors noted that the cross-sectional data used for this analysis prevented the investigation of hypothesized pathways, but concluded that the “historical context may be important for understanding the associations between neighborhoods and health (for Asian and Latino groups)...and the findings provide a basis future research exploring these mechanisms in greater depth” (Mason, 2011, p.287). This suggests that future inquiries should consider factors such as historical oppression, recent migration patterns, and/or other elements in the social environment that may be important to a more nuanced understanding of how place affects the health of various residents.

### **Incorporating a “Relational” Perspective of Place**

We applied a similar, but modified, analysis following Cummins et al. (2007). This included identifying five key concepts of place: 1) whether geography was determined by pre-defined boundaries at a specific scale (the conventional view) or as networks in a more complex relationship with various levels (i.e., local, national, and global) and feedback loops (relational); 2) whether neighborhoods are separated by physical distance (conventional view) or understood to be separated by social relationships (relational); 3) whether populations are thought to be individuals bound by their neighborhood (conventional view) vs. mobile on a daily basis and over their lifecourse (relational); 4) whether services are described in terms of fixed locations serving those in that territory and are culturally neutral (conventional) vs. services imbued with social power relationship and cultural meaning; and 5) whether areas are thought of as politically neutral (conventional) or as populations with varying degrees of political power (relational). Our analysis reveals a limited relational view of place in the six articles reviewed. Table 2 summarizes this analysis.

**Table 2. Literature Review Findings: Incorporating A Relational View of Place**

		<b>Relational View of Place</b>				
<b>Title</b>	<b>Authors</b>	<b>Geography: specific scale defined?</b>	<b>Distance: physical or physical/social?</b>	<b>Populations: static or longitudinal Mobile daily and over life course?</b>	<b>Health-promoting resources: (culturally considered?)</b>	<b>Political Power (addressed?)</b>
Residential Segregation and the Availability of Primary Care Physicians	<i>Gaskin FJ, Dinwiddie GY, Chan KS, McCleary RR (2012)</i>	Boundaries at specific scale (zip codes)	Fixed and Physical	Static in time; cross-sectional	Considered in Discussion	No

Neighborhood ethnic density and preterm birth across seven ethnic groups in New York City	<i>Mason, Susa M, Kaufma JS, Daniels JL, Emch ME, Hogan VK, Savitz DA (2011)</i>	Incorporated a spatial measure: "proximity-weighted ethnic density" to allow surrounding areas around mother's residence to influence estimated exposure in proportion to the relative distance from mother's residence.	Weighted exposure (ethnic density) based on proximity, decreases as distance from subject's residence increases	Static in time; cross-sectional	No	No
Residential segregation and birth weight among racial and ethnic minorities in the United States	<i>Walton, E. (2009)</i>	Boundaries at specific scale (census tracts)	Fixed and physical	Static in time; cross-sectional	Considered in discussion	Yes
Environmental Inequality in Metropolitan America	<i>Downey L, Dubois S, Hawkins B, Walker M. (2008)</i>	Boundaries at specific scale (census tracts)	Fixed and physical	Static in time; cross-sectional	No	No
The riskscape and the color line: Examining the role of segregation in the environmental health disparities	<i>Morello-Frosch R, Lopez R (2006)</i>	Boundaries at specific scale (census tracts)	Fixed and physical	Static in time; cross-sectional	Yes	Yes
A multilevel analysis of the relationship between institutional and individual racial discrimination and health status	<i>Gee, Gilbert C. (2002)</i>	Boundaries at specific scale (census tracts)	Fixed and physical	Static in time; cross-sectional	Yes	Yes

Understanding elements of place through a more relational point-of-view was incorporated only modestly. One limiting factor may be the use of secondary data. Another limitation across studies was the use of cross-sectional data, thus important relational elements such as time, the effects of cumulative exposures experienced over

a lifecourse, historical processes associated with space, and other contextual factors included in social- and ecological- theoretical frameworks were not considered. This is a common limitation of using census data (Gee, 2002). Almost all of the studies used discrete and fixed scales of neighborhoods, with the majority defining census tracts as the neighborhood-scale, and one using zip codes. While this is not inherently a misgiving, it begs a justification for how these scales either broaden our understanding or reproduces a more artificial understanding of boundaries and lived experiences (Richardson & Nuru-Jeter, 2012). Furthermore, half of these studies do not distinguish whether access to services were not only health-promoting but also culturally accessible, as this provides a more nuanced understanding of whether a neighborhood provides more opportunities versus barriers to health. Finally, relational theorists emphasize a more dynamic understanding of place that is policy-relevant (Cummins et al., 2007), which translates into considerations for how the roles of individuals, community organizations, local and national government institutions, private businesses, family- and peer- networks, as well as regulatory policies and laws, shape the organization, opportunities, and reputations of places.

Thus we sought to examine whether or not a political context was considered in the underlying theoretical framework, analysis or discussion. Half of the studies in the sample consider the effect of political power and participation of its residents. The most intentional involved a measure of voter-turnout as a proxy for civic engagement, recognizing that “in a highly segregated metropolitan context, political influence and decision-making power are likely to be stratified across racial/ethnic lines and concentrated to serve the interests of racial majority communities” (Morello-Frosch & Jesdale, 2006).

From a methodological standpoint, qualitative research methods may be more suitable for studying the interrelationships between individuals and their social contexts, using techniques that capture the lived experiences and narratives of residents themselves. Mixed methods may also be helpful in this regard. Cummins et al. points out that statistical modeling is limited in its abilities to capture all the nuances and detail that can be observed with qualitative approaches. In order for quantitative epidemiological studies to investigate more carefully the extent of interrelationships between individual characteristics and the features of places associated with varying health risks, the relational view researchers suggest the use of multi-level models as a way to assess whether individual risk factors are equally significant in all settings, or whether they are more important in some types of place than in others (Cummins et al., 2007).

Furthermore they cite examples of multilevel models that use interaction terms as “a more appropriate way to explore whether social support has different impacts according to the socio-economic environment... but states that for these statistical tests of interactions to be informative, they will need to be based on *a priori* theory and must use study designs and data structures that ensure sufficient power to detect these interactions” (Cummins et al., 2007, p. 1829). Two studies utilized multilevel modeling to simultaneously explore individual- and area- level effects between the residential segregation and health. In Gee’s (2002) study examining the association between self-

reported racial discrimination and health status among ethnic group members, multivariate models included individual-level covariates -- acculturation, family income, employment status, education, health insurance status, age, and sex. A second higher-level model added institutional racial discrimination measures—dissimilarity index (segregation) and redlining—as well as neighborhood poverty and the neighborhood median housing value (Gee, 2002).

Specifically regarding segregation, results indicated that respondents living in segregated neighborhoods had better (e.g., lower) PST (positive symptom total) and PSDI (Positive Symptom Distress Index) scores. The author noted that although this finding is of only marginal statistical significance, “the effects of segregation may be obscured by individual factors determined by segregation—for example, employment opportunities” (Gee, 2002, p. 620). Furthermore, the authors contend, that Chinese Americans living in more integrated areas had a more intense and wider range of psychological symptoms” a finding which runs counter to those of other studies which have consistently shown, for example, that Blacks residing in segregated areas have worse health outcomes (Gee, 2002). The author’s findings suggest that with Chinese Americans, segregation may represent the clustering of resources, not stressors (Gee, 2002). Further, living in more integrated communities may increase exposure to interpersonal discrimination experiences (Acevedo-Garcia & Lochner, 2003). However, the author notes because they selected only the neighborhoods (i.e., 36 census tracts) where Chinese Americans were the most segregated from the city as a whole, information on the remaining 1616 census tracts were not collected and the results may be biased towards the null if these excluded areas are more health aversive than the ones sampled.

Walton (2009) used multilevel logistic regression models to assess the impact of metropolitan area residential isolation and residential clustering on individual birth weight among Asian Americans. Final models explored the mediating effect of Asian American affluence, which did not influence the protective effects of isolation and clustering on birth weight. Among Asian Americans as a whole, residential isolation and clustering of neighborhoods decrease the odds of experiencing low birth weight. The author further suggested that it is likely that some unique structural and social features of ethnic enclaves that have not been measured in this study may account for the positive effects of residential segregation for Asian Americans. More specifically, ethnic enclaves may concentrate educational resources, increase social integration and support, and decrease exposure to discrimination, all of which are associated with health outcomes (Acevedo-Garcia & Lochner, 2003; Osypuk et al., 2009). Furthermore, Asian American communities may also be protective due to the highly sophisticated system of education that supplements public schooling, including ethnic language schools and after-school education often found in highly segregated Asian communities (Walton, 2009, p. 438). These ethnic educational institutions facilitate social mobility by providing access to quality education, increasing social support and network-building, and formation of social capital for immigrant and U.S.-born children alike.



Other lines of quantitative research concentrate on the relative inequalities of environmental and social conditions between racial groups in a geographic space, which, from a relational perspective, may provide a more meaningful understanding of how residential segregation effects social and environmental determinants of population health. Downey et al.'s investigates the degree of various environmental inequalities for multiple racial groups in the U.S. using relative measures of environmental exposures in metropolitan areas to allow for a more “nuanced understanding of the environmental hazard burden experienced by racial and ethnic groups” (Downey, et al., 2008, p.3). For example, the authors tested several hypotheses that predicted the role racial residential segregation and income inequality played in producing environmental inequalities, predicting that highly segregated racial and ethnic groups are more likely to experience a high pollution burden relative to lower segregated racial/ethnic groups in the same metropolitan area. Their analysis revealed that in some metropolitan areas, environmental hazards may be dispersed relatively widely across urban space, such that segregated minority groups live near some environmental hazards, but not others; and in other metropolitan areas, environmental hazards and minority populations may both be residentially concentrated but in different parts of the same metropolitan area.

Their findings suggested that residential segregation can both increase and decrease racial/ethnic group proximity to environmental hazards, but was dependent on a several other factors, making residential segregation a poor predictor of environmental inequality. When modeling the effect of residential segregation on Asian American air pollution exposures, Asians experienced low pollution burden despite having high levels of residential segregation. However, regression models showed that a one standard deviation increase in the dissimilarity score increased the odds that Asians are both the highest and lowest pollution burdened group in a metropolitan area, supporting their initial hypothesis. While this literature provides mixed findings, they suggest potential quantitative approaches and methods that give attention to complexities often ignored in literature.

While the ability to operationalize a relational view of place across all the considerations in our analytic framework may represent an extreme, the more important application is to consider whether or not a study helps to imagine how populations of individuals navigate physical spaces differently each day and over a life course, and how an individual's region—beyond the immediate neighborhood—is laden with territorial divisions, services, and infrastructure conflated with historical meaning, cultural meaning and power relationships.

## **DISCUSSION**

Racial residential segregation appears to be associated with both negative and positive health effects for Asian Americans. The mixed health effects among Asian Americans in this literature review are consistent with the previous, albeit limited, literature on associations between segregated Asian American neighborhoods and health. To our knowledge, this is the first systematic literature review focusing exclusively on Asian Americans, segregation, and health. Because residential segregation of Asian

Americans resulted from historical racial discrimination as well as, more recently, preferences by newly arrived immigrants to live among co-ethnics, the limited evidence provided suggests complex but beneficial aspects of living in ethnically concentrated neighborhoods. However, given the limits of quantitative research to investigate important historical processes, meanings, and power relationships, these findings should be accepted with some caution.

Furthermore, given the limited epidemiological and sociological studies that have sought to understand the health risks and benefits specific to the complex Asian American experience, the empirical evidence may similarly suggest once again an overall positive, and overly simplistic picture of health among segregated Asian Americans. That is, self-identifying with the category “Asian American”, can continue to signify to public health researchers and officials, alike, a healthy individual or community. Both these more contemporary notions of Asian Americans as the “healthy model minority” as well as historical practices in constructing a view of “Asian Americans” as “dirty and disease-ridden” are problematic and over-simplify the complex social, economic, and political processes that shape health (Shah, 2001, p.27; Gee & Ro, 2009; Flack, 1995). Given this historical awareness and more recent evidence of the relational aspects of place, extending a similar socio-historical and relational view of place to that of the “Asian American” racial construct with a more local perspective may help shape a more nuanced perspective of Asian American health.

While quantitative studies are useful and indeed necessary for testing hypothesized pathways, which may then inform intervention and policy, these statistical tests need to be informed by *a priori* theories that consider the complex socio-historical processes that help shape health among Asian Americans, so that study designs and the selections of variables can more appropriately model relationships, processes, and meanings of segregated neighborhoods. Qualitative research techniques can be used to validate how specific features of places (e.g., features of the built or social environment) are relevant to population health and inequities (for example, see Schulz & Lempert, 2004). In particular, qualitative methods that seek to understand the multiple dimensions of practices, processes, power dynamics, and reputations of a place may include collecting resident’s views, participant observations, and key informant opinions as well as objective measures of resource accessibility and participatory mapping (Cummins et al., 2007). Qualitative analyses should be used to explore the attitudes, perceptions, and justifications of Asian Americans for their neighborhood racial composition preferences, which is especially important for immigration-related neighborhood characteristics (Charles, 2003).

This research not only provides a deeper understanding of the relationship between the features of places and human health—including mechanisms, variability across different subpopulations, and magnitude—but also suggests potential areas of public health interventions by emphasizing cultural or structural determinants that traditional quantitative research often misses. It may also be used to inform the scope of quantitative studies, including the selection of study sites and study designs. Longitudinal studies in areas with growing or decreasing residential segregation, for

example, might be implemented to measure the impacts of residential segregation, and important, theoretically-driven social and environmental conditions, over time as key next steps to understanding causal pathways and cumulative risks.

Having consistent dimensions and scales of residential segregation among studies allows for more meaningful comparisons about the associations between residential segregation and health. However, more importantly, scale should be relevant to the research question, as well as relevant to the context for how findings can be translated to potential solutions. For example, Morello-Frosch & Jesdale (2006), elected to incorporate a multi-group (versus the usual dyadic comparison, such Black-White) dissimilarity index to “characterize segregation in the more typically multiethnic contemporary metropolis.” Furthermore, they explicitly argued that examining segregation at the metropolitan area promotes a regional perspective conducive to regional-level interventions and policies that ameliorate fundamental drivers of environmental health inequalities “because economic trends, transportation planning, and industrial clusters tend to be regional in nature.” (Morello-Frosch & Jesdale, 2006).

### **Factors Influencing Health Effects of Residential Segregation**

Despite recommendations to disaggregate Asian Americans by ethnicities in research (Srinivasan & Guillermo, 2000; Tseung, 2009), only one study did so, focusing on Chinese Americans in Los Angeles (2002). Mason’s study in New York City separated “East Asians” from “South Asians”, which could be viewed as a “step in the right direction”, though the study lacks a theoretical basis for this disaggregation. Walton’s (2009) national study attempted to account for heterogeneity among Asian American groups by including dummy variables for ethnicity in order to verify that the effects of residential segregation observed for Asian Americans as a whole do not vary by ethnic group, and acknowledged, “while it would be ideal to stratify the analysis by ethnicity, rather than control for ethnicity, stratifying this sample into its component ethnic groups was not possible in this national analysis” (Walton, 2009). These limitations once again point to the necessity for population-based epidemiological surveys to oversample Asian Americans across sub-groups in order to allow for data disaggregation.

Understanding how neighborhoods change over time may also provide insight on the effects of place on health. For example, rapid migration of a particular ethnic group has often led to racial discrimination and tension between old and new residents in a given place, and can manifest in various interpersonal and institutional forms of oppression (Noh et al., 1999; Kuo, 1976). A relational view may help investigators to understand this context by incorporating mixed-methods approaches, or constructing variables that account for the rate of change, such as rapid population growth, political participation, or changes in the degree of segregation over time.

Epidemiologic research has sought to understand what factors moderate the effects of racial discrimination on health, including psychosocial stressors and coping mechanisms. A limited but compelling body of empirical research has shown a complex and heterogeneous association between racial discrimination and health for Asian

Americans. For example, ethnic pride and identity have been shown to protect against the negative effects of discrimination, while in other studies, ethnic identity exacerbated the negative health effects of discrimination among certain Asian groups (Yip 2008; Noh 2003). Another line of inquiry investigating the association of nativity, acculturation, and Asian American health has cautioned against the acceptance of the “immigrant paradox” because it oversimplifies and masks negative outcomes experienced by subgroups (e.g., speaking poor or fair English, and those reporting acculturative stress) (John, 2012; Takeuchi, 2007). With the exception of Gee’s (2002) study on whether self-perceived discrimination and residential segregation are associated with self-reported poor health, no studies have closely examined how racial discrimination influences the health of Asian Americans in residentially segregated neighborhoods.

One factor purported to be an important influencer of the residential segregation and health pathway has been individual and collective forms of political power and civic engagement (Morello-Frosch & Jesdale, 2006; Kawachi & Berkman, 2000; LaVeist, 1993; LaVeist, 1992). Understanding the unique dimensions of political empowerment among Asian Americans is an important dynamic for understanding the potential mechanisms for the segregation-health relationship. Political empowerment at an individual level includes such processes as voting, volunteerism and civic participation in political activities. One outcome of such activities can be an expansion of social networks, which can enhance psychological and social resources (Batista & Cruz-Ledón, 2008). For example, a study with older, predominately White women who were part of a social activism group found that empowerment and social activism were positively related, which are linked to older women’s health and well-being. (Hutchinson & Wexler, 2007). In another study examining infant mortality among residentially segregated Black residents, high-degrees of segregation enabled political power in Black communities, attenuating the negative effects of residential isolation (LaVeist, 1993). Relatively less scholarly work has focused on the important elements of political empowerment among Asian Americans.

Traditional measures that have focused on individual behaviors like voting and monetary political contributions may only explain a partial picture of how Asian Americans express themselves politically (Aoki & Nakanishi, 2001). Asian Americans are predominately foreign-born, and thus are less likely to be fully socialized into voting life, and less likely to be courted by politicians and mainstream media as important to voting outcomes (Wong, et al., 2011). Instead, analyzing “contextual variables [e.g., Asian political empowerment], community organization efforts or the presence of [Asian] candidates appear to be (as) important” (Aoki & Nakanishi, 2001). An additional factor to consider is a “pan-Asian identity.” While earlier it was argued that racial lumping has been a potentially harmful practice in public health research, social and political scientists have argued that pan-Asian unity is necessary if Asians are to contest systems of racism and inequality in American society—systems that seek to exclude, marginalize, and homogenize them and, thus, decrease opportunities and resources for optimal health.

### *Further Implications for Future Research on Asian Americans, Racial Residential Segregation, and Health*

There are several conclusions worthy of informing future research. For example, two out of the six studies (Walton, 2009; Gee, 2002) employed multi-level models to account for the clustering effect of residents living within the same neighborhood environments, and Walton allowed interaction terms (residential segregation and Asian affluence) to explore pathways between segregation and health. While these studies varied in its incorporation of historical and cultural aspects to “place”, all of the studies were static in time and geographically bound by pre-defined specific scales of space, leaving room for future research to build upon.

We offer that site specific, multi-dimensional and mixed-method research can help characterize Asian American neighborhoods and help inform theoretical frameworks that can account for factors unique to Asian American contexts and identify further features necessary to include in quantitative, mechanistic research. For example, resurgent ethnicity theory typologizes another ethnic neighborhood beyond the ethnic enclave or immigrant ghetto--, where “Asian Americans with high socioeconomic status understand that they may have little to gain by spatially integrating with whites and there is, therefore ,an element of choice present in the decision to live in residentially segregated communities” (Walton 2012a, Alba et al. 1999; Logan et al. 2002; Wen et al. 2009). Distinguishing ethnic communities provide a more accurate picture of rising Asian American suburban enclaves that offer a high-resource setting in which to reside, even when spatial assimilation is an option (Walton 2012a; Wen et al. 2009). Few epidemiological studies have operationalized this framework, and future research may help ground empirical studies in this and other similar frameworks, which may be more relevant to communities with different social and historical contexts.

### **CONCLUSION**

Further research is needed to understand the complex association between racial residential segregation, its mechanistic pathways, and overall health status of Asians. Examining the role of racial segregation for Asian American health, and the contextual effects of living in Asian ethnic neighborhoods or non-Asian neighborhoods provides an opportunity to understand the various impacts of racial segregation on the health of Asian Americans. Future research should be guided by sociological theories grounded in the Asian American experience, in order to avoid a one-size-fits all approach that has historically treated Asian Americans as a healthy model minority. The implications of these social and political distinctions may provide more nuanced place-based research efforts that can better capture social meanings and “relational views” of place, and more importantly, provide grounds for public health interventions aimed at addressing structural causes of health inequities more relevant to Asian American experiences.

We have argued that a relational view of place is one approach that can prompt important contextual considerations, which itself is not a novel theory but rather raises concerns about various constructs are applied in research (Cummins et al., 2007).

Understanding the role that social, structural, and political forces play in shaping exposure to health risks—and who determines the extent of exposure to these factors—is critical to the effectiveness of public health interventions for all groups, and especially for rapidly-growing and evolving groups such as Asian Americans.

## REFERENCES

---

1. Acevedo-Garcia, D., Lochner, K. A., Osypuk, T. L., & Subramanian, S. V. (2003). Future directions in residential segregation and health research: a multilevel approach. *American Journal of Public Health*; 93(2): 215-221.
2. Acevedo-Garcia, D., & Lochner, K. A. (2003). "Residential segregation and health" 265-287, 352 in: Kawachi, I., & Berkman, L. F. (Eds.). (2003). *Neighborhoods and health*. New York: Oxford University Press.
3. Alba, R., & Nee, V. (2003). Remaking the American mainstream. *Assimilation and Contemporary Immigration, Cambridge, Mass./London*.
4. Alegria, M., Takeuchi, D., Canino, G., Duan, N., Shrout, P., Meng, X.L., Vega, W., Zane, N., Vila, D., Woo, M., Vera, M., Guarnaccia, P., Aguilar-Gaxiola, S., Sue, S., Escobar, J., Lin, K.M., Gong, F. (2004). Considering context, place and culture: the National Latino and Asian American Study. *Int J Methods Psychiatr Res.*; 13(4):208-220.
5. Aoki, A. L., & Nakanishi, D. T. (2001). Asian Pacific Americans and the new minority politics. *Political Science & Politics*, 34(03), 605-610.
6. Batista, L.C., & Cruz-Ledón, A.M. (2008). The relationship between civic engagement and health among older adults. In the *Proceedings of the Seventh Annual College of Education Research Conference*, Miami, FL. Retrieved at: [http://education.fiu.edu/research\\_conference/docs/proceedings/COERC%202008%20Proceedings.pdf#page=203](http://education.fiu.edu/research_conference/docs/proceedings/COERC%202008%20Proceedings.pdf#page=203).
7. Bell, J. F., Zimmerman, F. J., Mayer, J. D., Almgren, G. R., & Huebner, C. E. (2007). Associations between residential segregation and smoking during pregnancy among urban African-American women. *Journal of Urban Health*, 84(3), 372-388.
8. Berkman, L. F. (1986). Social networks, support, and health: Taking the next step forward. *American Journal of Epidemiology*, 123(4), 559-562.
9. Brulle, R. J., & Pellow, D. N. (2006). Environmental justice: human health and environmental inequalities. *Annu. Rev. Public Health*, 27, 103-124.

10. Center, P.H. (2012). The Rise of Asian Americans. *The Pew Hispanic Center and The Kaiser Family Foundation*.
11. Chae, D. H., & Walters, K. L. (2009). Racial discrimination and racial identity attitudes in relation to self-rated health and physical pain and impairment among two-spirit American Indians/Alaska Natives. *American Journal of Public Health, 99*(S1).
12. Charles, C. Z. (2003). The dynamics of racial residential segregation. *Annual review of sociology, 167-207*.
13. Choskwanyun, M. & Segall, J. (2012). The Rise of the Majority-Asian Suburb. *Atlantic Cities, 24 August 2012*.
14. Corburn, J. (2009). *Toward the Healthy City. People, Places, and the Politics of Urban Planning*. Cambridge: MIT Press.
15. Cummins, S., Curtis, S., Diez-Roux, A. V., & Macintyre, S. (2007). Understanding and representing 'place' in health research: a relational approach. *Social science & medicine, 65*(9), 1825-1838.
16. Dubowitz, T., Subramanian, S. V., Acevedo-Garcia, D., Osypuk, T. L., & Peterson, K. E. (2008). Individual and neighborhood differences in diet among low-income foreign and US-born women. *Women's Health Issues, 18*(3), 181-190.
17. Flack, J.M., Amaro, H., Jenkins, W., Kunitz, S., Levy, J., Mixon, M., Yu, E. (1995). Epidemiology of minority health. *Health Psychology, 14*(7), 592-600.
18. Frey, W. H., & Farley, R. (1996). Latino, Asian, and black segregation in US metropolitan areas: Are multiethnic metros different? *Demography, 33*(1), 35-50.
19. Galea, S. & Schultz, A. (2006). Methodological Considerations in the Study of Urban Health: How do we best Assess how cities affect health? In, Freudenberg, N., et al. (eds). *Cities and the Health of the Public*. Vanderbilt University Press, pp. 277-293.
20. Gee, G. (2002). A multilevel analysis of the relationship between institutional and individual racial discrimination and health status. *American Journal of Public Health, 92*: 615-623.
21. Gee, G. C., Spencer, M., Chen, J., Yip, T., & Takeuchi, D. T. (2007). The association between self-reported racial discrimination and 12-month DSM-IV mental disorders among Asian Americans nationwide. *Social Science & Medicine, 64*(10), 1984-1996
22. Gee, G. & Ro, A. (2009). Racism and Discrimination. In *Asian American Communities and Health*. Trinh-Shevrin C, Islam NS, Rey MJ (ed.) Josey Bass: San Francisco, 364-395.

23. Healthy People 2020. (2011). Goals and Objectives: Social Determinants of Health. Department of Health and Human Services, accessed on December 8, 2011 at <http://healthypeople.gov/2020/topicsobjectives2020/overview.aspx?topicid=39>
24. Hoeffel, E.M., Rastogi, S., Kim, M.O., Shahid, H. Issued: March 2012. The Asian Population: 2010. *The Census Briefs*. U.S. Department of Commerce, Economics and Statistics Administration. United States Census Bureau.
25. Hutchinson, S. L., & Wexler, B. (2007). Is “raging” good for health?: Older women's participation in the Raging Grannies. *Health Care for Women International*, 28(1), 88-118.
26. Iceland, J., & Weinberg, D. H. (2002). *Racial and ethnic residential segregation in the United States 1980-2000*. Bureau of Census.
27. Iceland, J. (2004). Beyond black and white: metropolitan residential segregation in multi-ethnic America. *Social Science Research*, 33(2), 248-271.
28. Iceland, J., Goyette, K. A., Nelson, K. A., & Chan, C. (2010). Racial and ethnic residential segregation and household structure: A research note. *Social Science Research*, 39(1), 39-47.
29. Iceland, J., & Scopilliti, M. (2008). Immigrant residential segregation in US metropolitan areas, 1990–2000. *Demography*, 45(1), 79-94.
30. Kawachi, I., & Berkman, L. (2000). Social cohesion, social capital, and health. *Social epidemiology*, 174-190.
31. Kramer, M. R., & Hogue, C. R. (2009). Is segregation bad for your health?. *Epidemiologic Reviews*, 31(1), 178-194.
32. Kuo, W. (1976). Theories of migration and mental health: an empirical testing on Chinese-Americans. *Social Science & Medicine* (1967), 10(6), 297-306.
33. Landrine, H., & Corral, I. (2009). Separate and unequal: residential segregation and black health disparities. *Ethnicity & disease*, 19(2), 179.
34. LaVeist, T. A. (1992). The political empowerment and health status of African-Americans: mapping a new territory. *American Journal of Sociology*, 1080-1095.
35. LaVeist, T. A. (1993). Segregation, poverty, and empowerment: health consequences for African Americans. *The Milbank Quarterly*, 41-64.



36. LaVeist, T., Pollack, K., Thorpe, R., Fesahazion, R., & Gaskin, D. (2011). Place, not race: disparities dissipate in southwest Baltimore when blacks and whites live under similar conditions. *Health affairs*, 30(10), 1880-1887.
37. Lieberman, S. (1961). The impact of residential segregation on ethnic assimilation. *Social Forces*, 40(1), 52-57.
38. Link, B. G., & Phelan, J. (1995). Social conditions as fundamental causes of disease. *Journal of health and social behavior*, 80-94.
39. Logan, J. (2011). Separate and Unequal: The Neighborhood Gap for Blacks, Hispanics, and Asians in Metropolitan America. *Research Brief, US2010 Project, 2013*.
40. Logan, J. R., & Zhang, W. (2013). Separate but Equal: Asian Nationalities in the US. *Research Brief, US2010 Project, 2013*. Downloaded May 9, 2013 at: <http://www.s4.brown.edu/us2010/Data/Reports/report>
41. Macintyre, S., Ellaway, A., & Cummins, S. (2002). Place effects on health: how can we conceptualise, operationalise and measure them?. *Social science & medicine*, 55(1), 125-139.
42. Massey, D. S., & Denton, N. A. (1993). *American apartheid: Segregation and the making of the underclass*. Harvard University Press.
43. Massey, D. S., & Denton, N. A. (1988). The dimensions of residential segregation. *Social forces*, 67(2), 281-315.
44. Martinson, M., & Minkler, M. (2006). Civic engagement and older adults: A critical perspective. *The Gerontologist*, 46(3), 318-324.
45. Mason, S. M., Kaufman, J. S., Daniels, J. L., Emch, M. E., Hogan, V. K., & Savitz, D. A. (2011). Neighborhood ethnic density and preterm birth across seven ethnic groups in New York City. *Health & Place*, 17(1), 280-288.
46. Morello-Frosch, R. & Jesdale, B.M. (2006). Separate and Unequal: Residential Segregation and Estimated Cancer Risks Associated with Ambient Air Toxics in U.S. Metropolitan Areas. *Environmental Health Perspectives*, 114(3), 386-393.
47. Morello-Frosch, R., & Lopez, R. (2006). The riskscape and the color line: examining the role of segregation in environmental health disparities. *Environmental Research*, 102(2), 181-196.
48. Mossey, J. M., & Shapiro, E. (1982). Self-rated health: a predictor of mortality among the elderly. *American Journal of Public Health*, 72(8): 800-808.

49. National Coalition for Asian Pacific American Community Development. (2013). *Spotlight on Asian American and Pacific Islander Poverty. A Demographic Profile*. Washington D.C.: Josh Ishimatsu. Accessible at: [www.nationalcapacd.org](http://www.nationalcapacd.org)
50. National Center for Health Statistics (NCHS), Health U.S., (2006). Table 27 Accessible at <http://www.cdc.gov/nchs/data/hus/hus06.pdf#027>
51. Noh, S., Beiser, M., Kaspar, V., Hou, F., & Rummens, J. (1999). Perceived racial discrimination, depression, and coping: A study of Southeast Asian refugees in Canada. *Journal of health and social behavior*, 193-207.
52. Osypuk, T. L., Roux, A. V. D., Hadley, C., & Kandula, N. (2009). Are immigrant enclaves healthy places to live? The Multi-ethnic Study of Atherosclerosis. *Social science & medicine* (1982), 69(1), 110.
53. Osypuk, T. L. (2013). Invited Commentary: Integrating a Life-Course Perspective and Social Theory to Advance Research on Residential Segregation and Health. *American Journal of Epidemiology*, 177(4), 310-315.
54. Patrick, D. L., & Erickson, P. (1993). *Health status and health policy*. New York: Oxford University Press.
55. Phelan, J. C., Link, B. G., & Tehranifar, P. (2010). Social conditions as fundamental causes of health inequalities theory, evidence, and policy implications. *Journal of Health and Social Behavior*, 51(1 suppl), S28-S40.
56. Richardson, D. M., & Nuru-Jeter, A. M. (2012). Neighborhood contexts experienced by young Mexican-American women: Enhancing our understanding of risk for early childbearing. *Journal of Urban Health*, 89(1), 59-73.
57. Schulz, A. J., & Lempert, L. B. (2004). Being Part of The World Detroit Women's Perceptions of Health and the Social Environment. *Journal of Contemporary Ethnography*, 33(4), 437-465.
58. Shah, N. (2001). *Contagious Divides: Epidemics and Race in San Francisco's Chinatown* (Vol. 7). Univ of California Press.
59. Srinivasan, S., & Guillermo, T. (2000). Toward improved health: disaggregating Asian American and Native Hawaiian/Pacific Islander data. *American Journal of Public Health*, 90(11), 1731.
60. Takeuchi, D. T., Zane, N., Hong, S., Chae, D. H., Gong, F., Gee, G. C., ... & Alegría, M. (2007). Immigration-related factors and mental disorders among Asian Americans. *Journal Information*, 97(1).

61. Tseung, W. (2009). Social, Demographic, and Cultural Characteristics of Asian Americans, (p.23-49) in Trinh- Shevrin, C., Islam, N. S., & Rey, M. J. (Eds.). (2009). *Asian American communities and health: Context, research, policy, and action* (Vol. 22). Jossey-Bass.
62. Walton, E. (2009). Residential segregation and birth weight among racial and ethnic minorities in the United States. *Journal of health and social behavior*, 50(4), 427-442.
63. Walton, E. (2012). Resurgent Ethnicity among Asian Americans Ethnic Neighborhood Context and Health. *Journal of health and social behavior*, 53(3), 378-394.
64. Walton, E. (2012a). Ethnic neighborhoods and health among Asian Americans: Can we generalize? Population Association of America 2012 Annual Program Meeting, San Francisco, CA: May 3-5. Accessed at: <http://paa2012.princeton.edu/papers/120288>
65. Wen, M., Lauderdale, D. S., & Kandula, N. R. (2009). Ethnic neighborhoods in multi-ethnic America, 1990–2000: Resurgent ethnicity in the ethnoburbs?. *Social Forces*, 88(1), 425-460.
66. White, K., & Borrell, L. N. (2011). Racial/ethnic residential segregation: framing the context of health risk and health disparities. *Health & place*, 17(2), 438-448.
67. Williams, D. R., & Collins, C. (2001). Racial residential segregation: a fundamental cause of racial disparities in health. *Public Health Reports*, 116(5): 404-416.
68. Wong, J., Ramakrishnan, S. K., Lee, T., & Junn, J. (2011). Asian American political participation: Emerging constituents and their political identities. Russell Sage Foundation.
69. Zhang, Q. F. (1998). Residential segregation of Asian Americans in the Atlanta metropolitan area, 1990. *Southeastern Geographer*, 38(2), 125-141.

# **Examining the Roles of Residential Racial Segregation, Social Capital, and Political Empowerment on the Psychological Distress of Asian Americans in California: An Exploratory Study**

*Objectives: To examine the role of racial residential segregation and self-reported mental health status among Asian Americans and to discuss the effects of social capital and political empowerment on the association. Specifically, the association of Asian American dissimilarity index at the Metropolitan Statistical Level with psychological distress at the individual level was examined.*

*Methods: Multilevel regression was performed on 4,527 Asian Americans who participated in the California Health Interview Survey (2011-2012).*

*Results: We found a significant association between residential segregation and psychological distress across different levels of individual-level social capital and collective political empowerment. However, in high segregated areas, low social capital was beneficial to psychological distress.*

*Conclusions: Better understanding the social context and type of social capital can lead to a more nuanced understanding of the relationship between residential segregation, social capital, and political empowerment in affecting the health status of Asian Americans.*

## **Background**

Racial residential segregation is known to affect the social, physical, and mental well-being of segregated minority groups in the United States (Williams, 2001). Racial segregation creates barriers towards increasing human capital by limiting educational and employment opportunities (Zhou & Logan, 1991; Massey & Denton, 1993). Living in segregated neighborhoods can also limit access to a variety of other health-promoting resources such as parks and grocery stores while increasing exposure to adverse environmental conditions such as crime, alcohol, and toxic air pollutants (Williams, 2001; Acevedo-Garcia, 2003; LaVeist, 2011). Few studies examining the relationship between segregation and health have focused on Asian Americans. Asian Americans are now the fastest growing racial group in the U.S. and have become more residentially segregated from whites over the past 30 years (Logan & Zhang, 2013). Metropolitan areas with the greatest growth in Asian American populations also experience the greatest Asian-White segregation, potentially resulting in highly concentrated ethnic enclaves (Iceland & Scopilliti, 2008). In addition, the most recent census data show that on average Asian Americans are increasingly living in poorer neighborhoods than whites (Logan, 2011). These trends may have significant implications for population health in general, and health inequities more specifically.

Studies of the effects of residential context on population health are rooted in a place stratification orientation, contending that residential segregation is harmful to the health of racial and ethnic minorities because structures in these communities limit access to social, political, and economic opportunities (Sampson & Wilson, 1995). Other studies have demonstrated an ethnic enclave effect, whereby “segregation in ethnic enclaves may help to ameliorate ‘culture shock’ and other stressors, including discrimination... (whereby) segregation may represent the clustering of resources, not stressors” (Gee, 2002). Ethnic enclaves result from a variety of factors, due in part to discriminatory housing practices, as a refuge against racism (e.g. targeted violence), and as a place to develop a sense of community (Trinh-Shevrin, 2009). Studies of Asian American segregation and health, albeit limited, provide evidence of both place stratification and ethnic enclave effects. Morello-Frosch & Jesdale (2006) showed that Asian Americans living in extremely segregated neighborhoods have a 32 percent higher relative risk of cancer related to air pollution compared to those living in less segregated neighborhoods. However, Walton (2009) demonstrates that Asian-white residential segregation reduced the likelihood of low-birth weight babies, due perhaps to the clustering of culturally-specific health resources and forms of social capital that bridge co-ethnic ties linking Asian Americans to other higher-resourced groups.

*Social Capital.* A growing but established literature base has linked social capital to better health outcomes (Kawachi et al., 2004) Social capital has often been described as the ways one connects with friends and neighbors and strangers (Putnam, 1995). This popular definition, however, is narrow, as the social sciences literature often recognizes social capital as a multi-dimensional construct measuring some combination of networks of secondary associations, levels of interpersonal trust, mutual aid, and reciprocity-which act as resources for individuals and facilitate collective action (Lochner, 1999). In the field of public health, social epidemiologists have developed measures for social capital consisting of four elements - value introjection, bounded solidarity, reciprocity exchanges, enforceable trust (Kawachi, 1997; Macinko & Starfield, 2001). While several studies have documented the protective effects of social capital (Kasisomayajula, 2006), the majority of public health research on social capital does not include a full accounting of the four elements described above, thereby limiting a full understanding of its influence on health, and prohibiting opportunities for focused interventions.

*Collective Political Empowerment.* Understanding the elements that foster and measure a sense of political empowerment is also an important dynamic for understanding the mechanisms for the racial segregation-health relationship. Political participation and civic engagement at an individual level include such acts as voting, volunteerism and civic participation in political activities. Political empowerment has also been described at a collective level to include political activities of community-based organizations and political parties (voter registration and education), as well as public demonstrations or protests (Ekman & Amna, 2012). One outcome of such activities can be an expansion of social networks, which can enhance psychological and social resources (Batista & Cruz-Ledón, 2008). Sociological and public health literature suggest that political empowerment is a hallmark of health promotion, especially for isolated communities

(Robertson and Minkler, 1994; Martinson and Minkler, 2006). LaVeist (1993) examined infant mortality among residentially segregated African Americans and showed that high-degrees of segregation enabled political power in Black communities countering the negative effects of residential isolation. As Asian American residential segregation and concentration increases, understanding the unique dimensions of Asian American political empowerment becomes a potentially important dynamic for understanding the mechanisms underlying the segregation-health relationship.

Figure 1 below presents a conceptual work for testing the effects of residential segregation and health status. Carpiano (2008) and Mackinko & Starfield (2001) have proposed pathways for understanding the relationships between racial segregated neighborhoods, dimensions of social capital, and health outcomes. We incorporated literature from the field of political sociology (Cho et al, 2006, Aoki & Nakanishi, 2001) to include contextual measures of political empowerment (e.g., rates for Asian American voter registration and voter turnout).

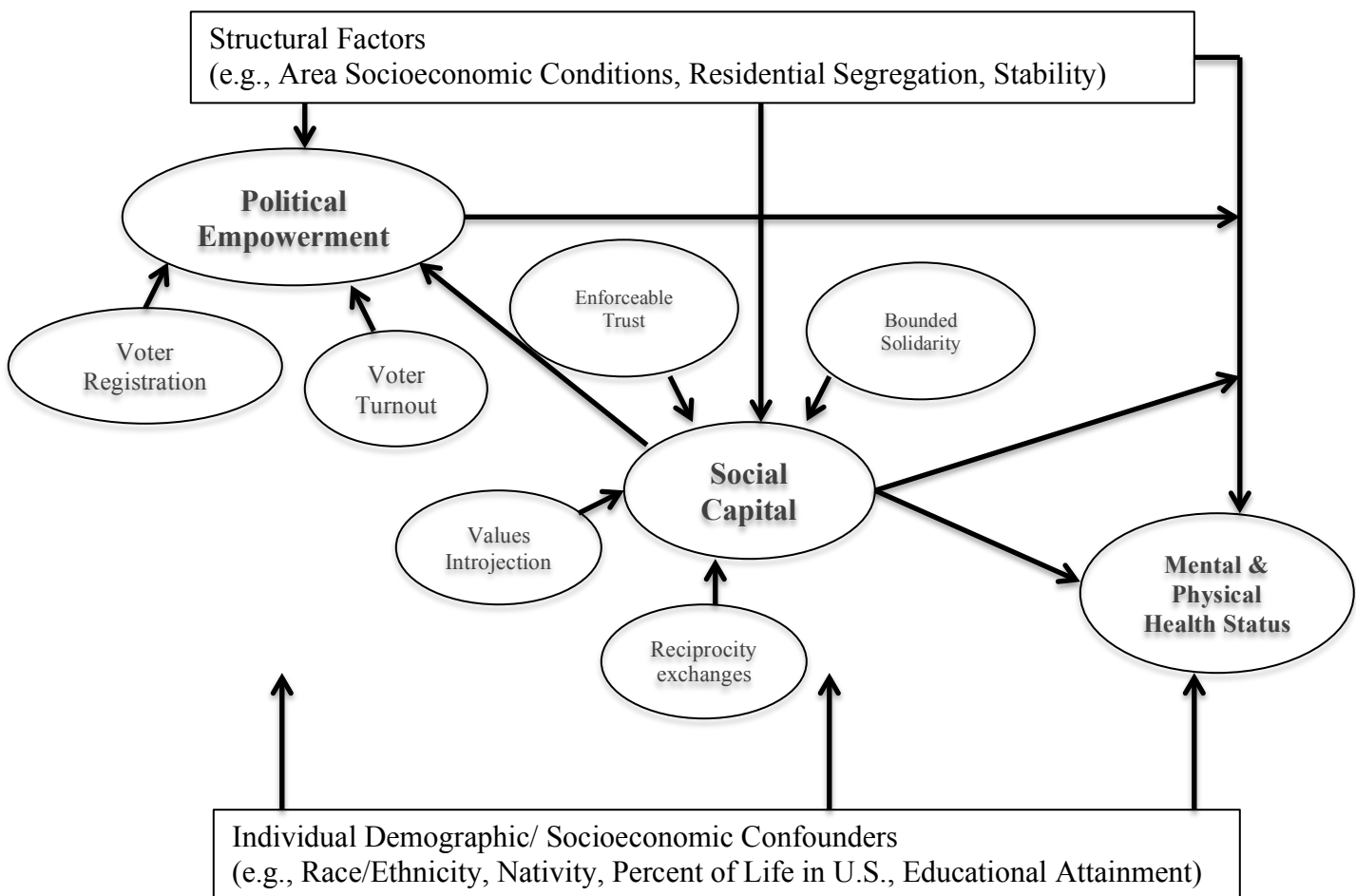


Figure 1. Conceptual Framework for Residential Segregation, Social Capital, Political Empowerment, and Health Status (Influenced by Carpiano, 2008; Cho et al., 2006; Mackinko & Starfield, 2001)

The objective of this exploratory study is to examine the associations between racial segregation and psychological distress among Asian Americans. In addition to psychological distress being a significant indicator of mental health status, it may also signify an essential pathway by which racial inequalities exist across multiple physical health outcomes (Nuru-Jeter et al., 2008). Given the importance of social capital and political empowerment for understanding the dynamics of place and health, we will examine each as potential moderators of the segregation-health relationship. In particular, data regarding these associations among Asian Americans is lacking but may help identify potential areas of intervention in this rapidly growing population.

Though this research is exploratory, we expected that increasing levels of racial segregation would be associated worse psychological distress. Furthermore, we expected that possessing greater social capital and residing in areas with higher levels of collective political empowerment will attenuate this association.

## **METHODS**

Data for this study combined 2010 U.S. Census data with data from the 2011-2012 *California Health Interview Survey* (CHIS). CHIS is a representative survey of non-institutionalized California residents ages 18 and over monitoring the health of Californians and examine changes over time by conducting periodic surveys on the health and well-being of selected populations (California Health Interview Survey, 2011). CHIS employed a multistage sampling design, using a random-digit-dial sample of landline and cellular (stratified by area code) telephone numbers from 44 geographic sampling strata, including 41 single-county strata and three multi-county strata comprised of the 17 remaining counties to randomly select households. Within each household, an adult respondent aged 18 and older is randomly selected as the survey respondent. Asian Americans were over-sampled. The sample for this study consisted of adults who self-identified as one or more of the following Asian subgroups: Chinese, Filipino, Vietnamese, South Asian, Japanese, Korean, and "Other Asian," living in a Metropolitan Statistical Area (MSA) within the state of California. An MSA is a census-defined metropolitan area with a core urban area of 50,000 or more population and its surrounding. ([U.S. Census](#)). MSAs were chosen as the unit of analysis for examining place level factors because MSAs mirror housing and labor markets that drive segregation patterns.

Each respondent in CHIS was confidentially geocoded to their place of residence. Permission was granted by UCLA's Data Access Center to link each respondent to a MSA. CHIS data was used for the health outcome and for selected covariates, as described below. The data structure of this study resulted in a two-level hierarchical structure with individuals (level-1) nested within MSAs (level-2).

*Dependent variables.* Mental health status will be measured using the Kessler 6 (K6) scale, a measure of generalized psychological distress that captures subclinical symptoms of anxiety and depression. Psychological distress (PD) is largely defined as a state of emotional suffering characterized by symptoms of depression (e.g., lost interest;

sadness; hopelessness) and anxiety (e.g., restlessness; feeling tense), and is a commonly used indicator of the mental health of the population in population surveys and in epidemiological studies (Drapeau, 2010; Mirowsky & Ross 2002). The K6 is a validated measure of generalized psychological distress that captures subclinical symptoms of anxiety and depression using a six-item scale (Cronbach  $\alpha = 0.84$ ) (Kessler et al., 2010). The K6 is widely used in population surveys to measure generalized psychological distress and to detect psychiatric disorders (Byrd, 2005). Respondents were asked about how often during the past 30 days they felt: (1) nervous; (2) hopeless; (3) restless or fidgety; (4) that nothing could cheer you up; (5) everything was an effort; (6) worthless. Responses were given on a 5-point likert scale ranging from 1 (“All” the time) to 5 (“None” of the time), as well as a “don’t know” and a “refused” option. Responses were summed across items (score range 1-24), with lower scores reflecting higher levels of psychological distress.

*Independent variables.*

Racial Residential segregation was measured by the dissimilarity index ( $D_x$ ), a measure of spatial evenness, and is a commonly used measure of residential segregation. It represents the proportion of minority members that would have to change their area of residence to achieve an even distribution in relation to another racial group. The  $D_x$  is expressed as a score between 0 and 1, with 0 being an even residential distribution of two groups in an area, and 1 being maximum residential segregation (Massey & Denton, 1988). For example, a value of .40 means that 40% (or more) of the members of one group would need to move to a different tract in order for the two groups to be evenly distributed.

Data for the segregation measure were obtained from the U.S. Census Demographic, Housing, and Income Data, version 1.9 (downloaded at [www.ffiec.gov](http://www.ffiec.gov)). Each respondent was assigned the level of neighborhood residential segregation corresponding to their census tract. We also measured the level of segregation for the MSA. The resulting measure of racial residential segregation was derived as follows:

$$D_x = \sum_{i=1}^n [t_i | p_i - P | 2TP(1 - P)]$$

*where  $t_i$  and  $P_i$  were the total population and Asian proportion of MSA unit  $i$ , and  $T$  and  $P$  are the population size and minority proportion of the whole city, which is subdivided into  $n$  areal units.*

We modeled the dissimilarity index continuously and interpreted the dissimilarity index according to common practices in the sociology literature: extreme segregation (.70-1.00); high segregation (.40-.69), moderate (.30-.39), and low segregation (0-.29) (Nazari & Mahmoodi, 2013; Massey & Denton, 1989; Bell, et al., 2006).



Social Capital: Table 1 provides the four questions and its corresponding dimensions of social capital, consistent with previous studies using CHIS (Kandula, 2009; Leader, 2008). Each respondent's answers were summed to indicate a total score (ranging from 4-16,  $\alpha = 0.6$ ) and averaged, with lower scores indicating higher levels of social capital (ranging from 1-4). We used the following cut-offs: scores ranging from 1-2 were categorized as high (category 1), 2-3 as moderate (category 2), and 3-4 as low (category 3). Epidemiologists have varied as to what level social capital should be operationalized. Kawachi (2008, p.10), for example, explains that at the individual level, social capital can be measured by asking an individual about her perceived trust of others in the community. At the neighborhood level, a measure of social capital can be constructed based upon aggregating individual responses to survey items about trust (e.g., the proportion reporting that they trust their neighbors). Due to our conceptual model, we chose to operationalize our measures at the individual-level because responses were measuring perceptions of their neighbors.

Table 1. CHIS and dimensions of Social Capital

CHIS Questions Responses: 1=Strongly Agree; 2=Agree; 3=Disagree; 4=Strongly Disagree)	Dimension of Social Capital and definition
People in my neighborhood are willing to help each other.	reciprocity exchanges ( <i>willingness to help others with the expectation that the favor would be returned when needed</i> )
People in this neighborhood can be trusted	enforceable trust ( <i>perception of neighbor's trust in a given area</i> )
You can count on adults in this neighborhood to watch out that children are safe and don't get in trouble.	values introjection ( <i>Internalized values, norms, and moral imperatives inform individual actions.</i> )
Do you feel safe in your neighborhood?	bounded solidarity ( <i>Adverse circumstances help otherwise unrelated people to band together to improve their lot</i> )

**Political Empowerment (Asian American Voter Registration and Asian American Voter Turnout):** Asian American voter registration was operationalized as a contextual-level variable as the proportion of Asian Americans who registered to vote divided by Asian Americans 18 years or older in a MSA, a commonly used measure in health and sociological research (Morello & Frosch, 2006; Kim & Kawachi, 2006). Collective Asian American Voter Turnout was calculated as the percentage of Asian Americans who voted / Asian Americans registered to vote (Blakely et al., 2001). The proportion of Asian Americans who are registered to vote and Asian American voter turnout are both included to measure distinct dimensions of collective political empowerment (table 2 below for partial correlation matrix). Other research suggests that these measures are related but are indicators of separate socialization processes to political participation,

especially among communities comprised of high proportions of immigrants, as is the case with Asian Americans (Cho et al, 2006). Data for both measures were provided by the Statewide Database at UC Berkeley School of Law using 2012 general election data. The Statewide Database files contain voter registration data stratified by ethnicity. Ethnicity was determined by matching Asian American surnames on voter registration cards to an ethnic surname list (Lauderdale & Kestenbaum, 2013).

**Table 2. Correlation Matrix for Asian American voter registration, voter turnout, and social capital, CHIS 2011-2012**

	AA voter registration	AA Voter turnout	Social Capital
AA voter registration	1.000		
AA voter turnout	0.376	1.000	
Social Capital	-0.046	-0.024	1.000

We considered several other demographic variables important to the studying contextual factors of Asian Americans (Gee & Ro, 2009; Harpham, 2008), listed in Table 3. For example, Nearly 70% of Asian Americans in the US are foreign-born (U.S. Census, 2007). Researchers examining Asian American health should consider the effect of nativity when examining the associations of social structure and processes of well-being, as nativity may exert particular influence on the importance of non-Western (e.g., Confucian) principles on family roles, with the foreign-born more apt to place family harmony above individual satisfaction and adhere to traditional roles, whereas native-born individuals may adopt more egalitarian, independent family relationships (Walton & Takeuchi, 2010). For nativity respondents were asked “In what country were you born?” (US-born=1 vs. foreign-born=0). Percentage of time living in the U.S. was based on respondent’s age of arrival in the U.S., and their current age. In addition, each census tract was assigned a value Neighborhood Poverty (continuous) was % of population (0-100) per MSA whose income is below the federal poverty level, obtained from the U.S. Census (downloaded from [www.ffiec.gov](http://www.ffiec.gov)). For educational attainment (dichotomized), respondents were asked, “What is the highest grade of education you have completed and received credit for?”. Responses were coded as less than a high school diploma (=1) and a HS diploma (or equivalent) or higher (=2).

Table 3: Summary of Variables

Variable	Description	Measure
Psychological Distress (PD)	Dependent Variable/Health outcome (level 1)	Continuous 1 to 24. Lower scores indicate worse psychological distress .
Racial Residential Segregation (RRS), Evenness	Independent Variable. Dissimilarity Index (level 2).	Continuous. Each MSA shall have a score from 0 to 1. Higher scores indicate higher racial residential segregation.

Social Capital (SC)	Main Moderator. Measure of individual access to social connections that provide health promotion resources. (level 1)	Categorical, 4-item question, range 4-16, with lowest scores indicated higher levels. High=1, Medium=2, and Low=3.
Asian American Voter Registration (AA Voter registration)	Main contextual-level moderator. % Registered AA Voters/ % Eligible AA Voters (level 2)	Continuous. Each MSA has a values from 0 to 1. Higher values indicates higher political empowerment.
Asian American Voter Turnout (AA Voter turnout)	% Asian Americans Vote/ % Registered (level 2)	Continuous. Each MSA has a value fro 0 to 1. Higher values indicates higher Asian American voter turnout.
Nativity status (nativity)	Control variable (level 1)	Dichotomized (1= foreign-born, 0= U.S. Born)
Percent of life living in U.S.	Control variable (level 1)	Continuous
Neighborhood Poverty	Control variable (level 2). Percentage of population in poverty in census tract (level 2)	Continuous
Education Attainment	Highest educational level (level 1)	Dichotomous, 1 = less than HS; 0= HS graduate/equivalent or more

## Statistical Analysis

Assumptions for univariate and bivariate normality and heteroskedasticity were checked and satisfied. A bivariate analysis examined associations and correlations between study variables, and to assess for collinearity to determine inclusion in multivariate models. Multilevel regression analysis was conducted to examine the associations between racial residential segregation and psychological distress, controlling for both level-1 (social capital, nativity, percent of life living in U.S., and educational attainment) and level-2 (neighborhood poverty, Asian American voter registration and voter participation at the MSA level) variables. Regression models used the variance component estimation or “VCE(robust)” option to account for the nested data structure in determining the standard errors. All analysis was performed using Stata 12.0.

Model 1 estimated the effects of effect of a one unit increase in racial residential segregation (RRS) in the  $j^{th}$  MSA on psychological distress (PD) for the  $i^{th}$  individual, using xtreg command, and VCE robust option sandwich estimators to account for calculate SE).

*Model 1:  $PSD_{i,j} = \beta_1 + \beta_2 RRS_j$  where  $\epsilon \sim N(0, \theta^2)$ .*

Model 2 added the covariates neighborhood poverty, time living in the U.S., nativity, educational attainment, %Asian Americans (AA) registered to vote in the MSA and AA turnout in the MSA.

Model 2:  $PD_{ij} = \beta_1 + \beta_2 RRS_j + \beta_3 \text{neighborhood poverty}_j + \beta_4 \text{timeU.S.}_{ij} + \beta_5 \text{nativity}_{ij} + \beta_6 \text{educational attainment}_{ij} + \beta_7 SC_{ij} + \beta_8 \text{AA registered voters}_j + \beta_9 \text{AA voter turnout}_j$  where  $\epsilon \sim N(0, \theta^2)$ .

Model 3 adds social capital to the model:

$PD_{ij} = \beta_1 + \beta_2 RRS_j + \beta_3 \text{neighborhood poverty}_j + \beta_4 \text{timeU.S.}_{ij} + \beta_5 \text{nativity}_{ij} + \beta_6 \text{educational attainment}_{ij} + \beta_7 SC_{ij} + \beta_8 \text{AA registered voters}_j + \beta_9 \text{AA voter turnout}_j + \beta_{10} \text{social capital}_{ij}$  where  $\epsilon \sim N(0, \theta^2)$ .

Model 4 expands the previous model to evaluate whether the association between residential segregation and psychological distress varies by different levels of social capital and by those living in MSAs with higher Asian American voter turnout. This is done by allowing for cross-level interaction terms for social capital ( $\beta_{16} RRS_j \times SC_{ij}$ ) and AA voter turnout ( $\beta_{17} RRS_j \times \text{AA voter turnout}_j$ ) and to model the effects of racial residential segregation to vary by neighborhood (census tracts). Specifically,  $\beta_{11}$  estimates the change in PD for a unit change in residential segregation for individuals reporting medium or low social capital, while  $\beta_{12}$  estimates whether the change in PD for a unit change in segregation is different for individuals reporting high voter turnout.

Model 4:  $PD_{ij} = \beta_1 + \beta_2 RRS_j + \beta_3 \text{neighborhood poverty}_j + \beta_4 \text{timeU.S.}_{ij} + \beta_5 \text{nativity}_{ij} + \beta_6 \text{educational attainment}_{ij} + \beta_7 SC_{ij} + \beta_8 \text{AA registered voters}_j + \beta_9 \text{AA voter turnout}_j + \beta_{10} \text{social capital} + \beta_{11} RRS_j \times SC_{ij} + \beta_{12} RRS_j \times \text{AA voter turnout}_j + \beta_{13} SC_{ij} \times \zeta_{2j}$ .

## RESULTS

The sample consisted of 4,527 respondents nested in 28 MSAs (Appendix 1). Table 4 shows the respondent's characteristics. Chinese and "other Asian" were the largest ethnicities in the sample (both at 26.4%) followed by Vietnamese (20.5%), Korean (16.3%), and Filipino (13.3%) The mean age was 51.6, with Korean respondents having the highest average (at almost 59 years) while Filipino respondents averaged 48 years old. The majority of respondents were born outside of the U.S. Of this sample, 24% were U.S. born American citizens, and another 59.1% were naturalized citizens, while 17% were non-citizens. Vietnamese had the lowest level of educational attainment (55.9% were high school graduates or lower) compared to "other Asian" and Filipino educational attainment levels, where 17.2% and 22.2% were high school graduates or lower, respectively. Vietnamese, followed by Korean, reported the lowest household incomes--less than \$26,000—at 57.7% and 48.1%, respectively), whereas only 28.7% of Chinese and 19.6% of Filipino respondents fell in the same household income bracket. Both Vietnamese and Korean respondents reported the highest rates of limited English proficiency (65.6% and 61.3%, respectively), but just 4.5% Filipino respondents reported limited English proficiency. Overall 65% of our sample reported high social capital, with "other Asian" (76%), Chinese (73%), and Filipinos (72%), specifically,

reporting high social capital. 53% of Vietnamese respondents reported high social capital, while just 27% of Koreans reported high social capital.

**Table 4. Selected Characteristics of Respondents (CHIS, 2011-2012)**

	All Asian		Chinese		Filipino		Vietnamese		Korean		Other Asian	
	n	(%)	n	(%)	n	(%)	n	(%)	n	(%)	n	(%)
Total	4527	(100.0)	1197	(26.4)	601	(13.3)	929	(20.5)	736	(16.3)	1196	(26.4)
Age, mean (SE)	51.63	(0.3)	50.5	(0.5)	47.64	(0.7)	53.28	(0.6)	58.64	(0.7)	48.12	(0.5)
18-24	462	(20.3)	137	(11.4)	91	(15.1)	74	(8.0)	49	(6.7)	144	(12.0)
25-44	1152	(25.5)	299	(25.0)	170	(28.3)	198	(21.3)	138	(18.8)	388	(32.4)
44-64	1695	(37.4)	484	(40.4)	221	(36.8)	407	(43.8)	206	(28.0)	421	(35.2)
65+	1218	(26.9)	277	(23.1)	119	(19.8)	250	(26.9)	343	(46.6)	243	(20.3)
Female	2544	(56.2)	669	(55.9)	346	(57.6)	485	(52.2)	471	(64.0)	635	(53.1)
Currently Married	2699	(59.7)	704	(58.8)	319	(53.1)	603	(64.9)	424	(57.6)	720	(60.2)
HS grad or Less	1438	(31.8)	334	(27.9)	134	(22.3)	519	(55.9)	286	(38.9)	206	(17.2)
Household Total Annual Income												
< \$26,000	1540	(34.0)	344	(28.7)	118	(19.6)	536	(57.7)	354	(48.1)	222	(18.6)
\$26000-\$79,999	1398	(30.9)	369	(30.8)	244	(40.6)	221	(23.8)	194	(26.4)	415	(34.7)
> \$80,000	1589	(35.1)	484	(40.4)	239	(39.8)	172	(18.5)	188	(25.5)	559	(46.7)
Own their home	2447	(54.1)	746	(62.3)	350	(58.2)	346	(37.2)	294	(39.9)	795	(66.5)
Citizenship & Nativity Status												
US-Born Citizen	1095	(24.2)	339	(28.3)	211	(35.1)	54	(5.8)	84	(11.4)	466	(39.0)
Naturalized Citizen	2675	(59.1)	694	(58.0)	317	(52.7)	734	(79.0)	487	(66.2)	504	(42.1)
Non-Citizen	757	(16.7)	164	(13.7)	73	(12.1)	141	(15.2)	165	(22.4)	226	(18.9)
Lived in U.S., % of life												
<60%	2715	(60.0)	650	(54.3)	254	(42.3)	740	(79.7)	566	(76.9)	550	(46.0)
>60%	1812	(40.0)	547	(45.7)	347	(57.7)	189	(20.3)	170	(23.1)	646	(54.0)
Limited English language proficiency	1524	(33.7)	371	(31.0)	27	(4.5)	609	(65.6)	451	(61.3)	85	(7.1)
Uninsured anytime in past 12 mon.	664	(20.1)	154	(16.7)	85	(17.6)	139	(20.5)	156	(39.7)	156	(16.4)
Social Capital												
Low	622	(13.7)	807	(67.4)	27	(4.5)	157	(16.9)	204	(27.7)	82	(6.9)
Medium	956	(21.1)	229	(19.1)	140	(23.3)	276	(29.7)	143	(19.4)	204	(17.1)
High	2949	(65.1)	880	(73.5)	434	(72.2)	496	(53.4)	204	(27.7)	910	(76.1)
Self-rated poor/fair health	1326	(29.3)	280	(23.4)	96	(16.0)	556	(59.8)	272	(37.0)	147	(12.3)
Psychological Distress (past 12 months)	234	(5.2)	55	(4.6)	37	(6.2)	46	(5.0)	51	(6.9)	60	(5.0)

Table 5 presents selected sample characteristics by high-moderate residential segregation (dissimilarity score  $\geq 0.4$ ) versus low residential segregation ( $<0.4$ ). For example, of those reporting high PD ( $n=234$ ), 88% lived in an MSA with high-moderate Asian-white residential segregation (RRS), while 12% lived in MSA with low RRS. Of those reporting high social capital, 92% lived in high-moderate RRS. Similar patterns were observed for those reporting medium and low social capital, with 93% and 96%, respectively, living in high-moderate Asian segregated MSAs. When looking at demographic characteristics, such as nativity (e.g. those born outside U.S.), 94.6% lived in a MSA considered high-moderate Asian-white RRS. Finally, we examined self-rated health in the descriptive analysis, and found that 94.3% of those rating their health as poor/fair lived in areas with high-moderate Asian-white RRS.

**Table 5. Sample Characteristics, by High-Moderate ( $Dx \geq 0.4$ ) and Low ( $Dx < 0.4$ ), All Asian Americans (n=4,527)**

	High-Mod. RRS RRS ( $Dx \leq 0.4$ )	Low RRS ( $Dx < 0.4$ )	Total, <i>n</i>
	%	%	
High Psychological Distress <sup>†</sup>	88.0	12.0	234
Social Capital <sup>**</sup> , High	92.1	7.9	2949
Med	93.1	6.9	956
Low	96.5	3.5	622
Born outside U.S.	94.6	5.6	3423
Poor/fair self-rated health <sup>***</sup>	94.3	5.7	1325

\* High Psychological Distress score  $\geq 13$ , (Kessler, et al., 2012)

\*\* Based on total average Social Capital score, High =1-2; medium = 2-3 ; and low =3-4 as low

\*\*\* Poor/fair Self-rated Health based on 1 question, 5-item Likert Scale, combining "poor" and "fair" responses.

Table 6 presents estimates for the regression models of psychological distress (PD) for Asian American respondents in the California Health Interview Survey (2011-2012).

**Table 6. Multilevel regression analysis of psychological distress, social capital, and political empowerment among Asian Americans, California (CHIS 2011-2012)**

	Model 1, No Covariates	Model 2, (+ Control Variables + Political Empowerment)	Model 3, (+ Social Capital)	Model 4, (+Interaction Terms (Social Capital and Political Empowerment))
	$\beta$ (SE)	$\beta$ (SE)	$\beta$ (SE)	$\beta$ (SE)
Residential segregation, Dx	-3.15 (2.4)	-6.44* (-2.33)	-6.60 ** (2.76)	-2.52 (3.8)
Neighborhood poverty		.083*** (0.21)	0.77 *** (0.21)	0.633*** (0.21)
Percent of life in U.S.		0.00008 (0.004)	0.001 (0.004)	0.003 (0.004)
Nativity (Born outside U.S.)		0.52** (0.28)	0.51 ** (0.28)	0.44 (0.27)
Educational attainment		-0.004 * (0.009)	-0.004 (0.009)	-0.12 (0.12)
% Asian Americans registered voters		-1.17 ** (0.48)	-1.17** (0.48)	1.80 (1.9)
% Asian American voter turnout		-1.11 (1.20)	-1.03 (1.20)	3.02 (1.13)
Social capital			0.24* (0.11)	
RRSxSocial capital, Med				-2.03 (4.75)
RRSxSocial capital, Low				13.56* (7.29)
RRSx%AA Voter Turnout, Med				-4.93 (0.27)
RRSx%AA Voter Turnout, High				-7.63 (6.24)

\* p<0.10  
 \*\* p<0.05  
 \*\*\*<0.001

In model 1, which examined the effect of residential segregation (RRS) on psychological distress (PD) with no other covariates, we observed that for every unit increase in level of RRS, there was a -3.15 drop in psychological distress scores, indicating worse psychological distress (Robust SE 2.4.). This was, however, was not statistically significant ( $p = 0.185$ ).

In model 2, in which covariates were added, we observed the magnitude of the effect of RRS to increase to -6.44 and became marginally significant ( $p < 0.10$ ). That is, for every unit increase of RRS, an individual's psychological distress score lowered by 6.44 (indicating higher distress). With regards to political empowerment, the % of registered Asian American voters was found to be significant whereas the % of Asian American voter turnout was not. For every unit increase of % Asian American registration, psychological distress scores lowered (or worsened) by 1.17 (SE=0.48,  $p < 0.05$ ). Being born outside the U.S (nativity status) was associated with high (better) psychological distress scores ( $b = 0.52$ , SE= 0.28,  $p < 0.05$ ).

In model 3, social capital was added to the model. The main effect of RRS increased slightly to -6.60, and became statistically significant ( $p < 0.05$ ). We also observed a statistically significant association of the effect of RRS on PD in those reporting differing levels of social capital. Increasing levels of social capital resulted in higher scores (or less) distress.

Model 4 examined whether social capital and Asian American voter turnout moderates the association between RRS and PD. For respondents reporting medium versus high levels of social capital, there was no significant difference in the effect of residential segregation on psychological distress. However, we observed a statistically significant difference when comparing respondents with low vs. high social capital ( $b=-13.56$ ,  $SE=7.29$ ).

## DISCUSSION

This paper investigated the effects of MSA-level racial residential segregation on individual-level psychological distress for Asian Americans in California. After adjusting for key contextual- and individual-level sociodemographic characteristics and sociopolitical contexts, we found a significant association between residential segregation and psychological distress across different levels of individual-level social capital and collective political empowerment. As expected, when looking at main effects, higher levels of social capital were associated with lower levels of PD, consistent with other studies (Steptoe & Feldman, 2001). When investigating social capital's moderating effects, however, higher levels of segregation were associated with lower PD scores (i.e., worse mental health) for people reporting low vs. high social capital. That is, having low social capital was better for mental health in higher Asian-white segregated communities. Though this was a surprise, it may reflect a deficiency in our measure. Social capital is a complex, latent construct with multiple dimensions, and measures should aim to address its explicit dimensions, such as the four previously described above (van der Gaag & Webber, 2008). Kawachi (2008) and other social scientists stress the differentiation between bonding (accessing resources and networks within one's community or shared identity) and bridging (accessing resources and networks through connections that crosses social identities, such as race, ethnicity, or class), as they each have different implications for health. Studies have suggested that stronger bonding ties within disadvantaged communities are detrimental to the health of community residents (Caughy, et al., 2001; Kim & Kawachi, 2006) Mitchell and La Gory (2002) found that bonding ties within a disadvantaged community and weak bridging ties to others significantly increased mental distress. That is, with regards to social capital, the social context matters. Accounting for more compositional-level *as well as* contextual-level characteristics of these MSAs may be warranted as a next step.

Our social capital measure attempted to utilize a scale of four questions in an attempt to quantify multiple dimensions of a latent construct. While there is still considerable debate on how to best measure the social capital, we chose to model social capital at the individual-level based on the survey questions and our conceptual framework. Aggregating individual responses to the MSA-level (our 2<sup>nd</sup>-level) and modeling MSA-social capital as a moderator to the RRS and PD association did not conceptually seem feasible. Future studies should test the validity of this measure as well as consider aggregating responses to the census tract, county, or MSA-level, or implement three-level mixed regression models.



In addition to examining the role of social capital on the association of RRS and PD, this study contributes to the literature on racial residential segregation by examining the moderating role of collective political empowerment. With regards to political empowerment, the percentage of registered Asian American voters was found to significantly effect psychological distress, whereas the percentage of Asian American voter turnout did not. However, unexpectedly, increased political empowerment (measured by % Asian American registration,) exacerbated psychological distress. We did not find a significant moderation effect of political empowerment on the association of RRS and PD. We chose these two measures primary because it is reflective of the immigrant socialization process into political participation and because it was a contextual-level measure. A limitation of our measure is that political empowerment measure were aggregated to the MSA-level thereby losing variability at county-levels, which potentially could have masked an effect.

Furthermore, voter registration and voter turnout data were obtained by the Statewide Database (SWDB) from the individual Registrars of Voters in the fifty-eight California counties. To determine what race or ethnicity a registered voter belongs to, the SWDB performs surname matching methodologies (Lauderdale & Kestenbaum, 2000). This methodology has several short comings, one being that Filipinos, for example, often have Spanish surnames and may be consequently flagged as Latino. Still these findings contribute to the paucity of research examining the unique barriers and potential opportunities that Asian American civic engagement and political participation has on the role on health inequities. Alternative measures as well as additional dimensions of collective political empowerment should be similarly be test in future research.

Conceptualizing residential segregation and its corresponding measure may also influence findings. This study used the dissimilarity index to measure evenness, the most common formal measures of one of five dimensions of residential segregation. The others are concentration, clustering, exposure, and centralization (see Massey & Denton, 1988). RRS has also been operationalized using proxy measures in research literature. For example, in a review by White & Borrell (2011), black racial composition, has been interpreted as a measure of neighborhood racial context, with higher values associated with enhanced social cohesion and a buffer against experiences of everyday discrimination. Though formal and proxy measures are related, the two types of segregation are conceptually different, affecting health differently (White & Borrell, 2011; Acevedo-Garcia et al., 2003). Studies using proxy measures to examine RRS and black mortality observed a lower risk of mortality, whereas formal measures have demonstrated higher mortality risk among blacks (White & Borrell, 2011). One strength of this study is that we chose to use a formal measure of segregation, as these measures represent complex racial and social processes in a given geographic area, and account for different economic and social structures that shape advantages and disadvantages for racial/ethnic groups (White & Borrell, 2011).

The geographic scales of formal measures of residential segregation may have implications for understanding its role on population health. RRS exists at several

levels—city, county, MSA, or state (Massey & Denton, 1988), and it is possible its effects for Asian Americans differ at different scales. The macro-level unit in our study was MSA, which we chose because MSAs encompass the labor and housing markets responsible for shaping residential segregation patterns (White & Borrell, 2011; Morello-Frosch & Lopez, 2006; Bell et al., 2006), and can help lead to regional-level interventions and policies to address racial inequalities. However, one limitation in using MSAs is that we potentially masked important variability within lower-units, such as between counties or groups of census tracts. For example, we noted that there were significant Asian American voter registration differences between counties within the same MSA, which may underestimated any differences in its effect on the RRS and PD relationship.

Other key limitations to our study should be noted. Our study measured one of several dimensions of segregation. Though the dissimilarity index captures a majority of the variance in the latent construct, each dimension of segregation has different conceptual implications for public health research. Notwithstanding, capturing more dimensions may capture the experience of segregation more fully, i.e., there could be some degree of measurement error, and hence our results may be an underestimate of true effects. Considering the different dimensions of RRS is important, because Asian American segregation has not been shaped by the same structural and institutional forces that, for example, has shaped Black segregation. For example, clustering is often used to indicate the presence of ethnic enclaves (Massey and Denton, 1988). Thus the social context for Asian American segregated neighborhoods may require alternative or additional ways of characterize these geographic spaces, where some segregated neighborhoods (i.e., census tracts or contiguous census tracts) are understood to be advantageous based on social and demographic indicators, while others serve to be disadvantageous.

*Further implications for future research.* Further research should include qualitative methods using multiple sites could comparison of suburban, rural, and urban districts, which can be useful for the illumination for differential communal social exposures and related health outcomes. Furthermore, due to our sample size, we did not disaggregate our sample by Asian subgroups in our multilevel study design as doing so did not provide stable estimates. By not doing so, we may be masking important sub-ethnic differences in our study. Future studies should combine data across CHIS surveys (e.g., combining 2007, 2009, and 2011-12) to compare associations among Asian ethnic subgroups.

## **CONCLUSION**

This exploratory study provides empirical evidence for the role of residential segregation on psychosocial stress among Asian Americans, and examines multiple dimensions of individual-level social capital and contextual-level political empowerment as moderators to the segregation–health relationship. Our findings suggest an association between Asian Americans living in high residential segregation MSAs and increased

psychological distress. Social capital and collective political empowerment are both associated with lower psychological distress. However, in high segregated areas, low social capital can be beneficial to psychological distress. This suggests that both the social context and type of social capital (i.e., dimensions as well as bridging versus bonding) are important distinguishing measures can lead to help understand the relationship between how residential segregation, social capital, political empowerment affect the health status of Asian Americans. Further research should not only provide additional understanding of potential mechanisms that lead to improved Asian American population health, but also allow interventions at the structural- and individual- level to health equity.

## Works Cited

1. Acevedo-Garcia, D., Lochner, K. A., Osypuk, T. L., & Subramanian, S. V. (2003). Future directions in residential segregation and health research: a multilevel approach. *American Journal of Public Health*; 93(2): 215-221.
2. Bell, J. F., Zimmerman, F. J., Almgren, G. R., Mayer, J. D., & Huebner, C. E. (2006). Birth outcomes among urban African-American women: a multilevel analysis of the role of racial residential segregation. *Social science & medicine*, 63(12), 3030-3045.
3. Blakely, T. A., Kennedy, B. P., & Kawachi, I. (2001). Socioeconomic inequality in voting participation and self-rated health. *American Journal of Public Health*, 91(1), 99.
4. Byrd, D. R. (2012). Peer Reviewed: Race/Ethnicity and Self-Reported Levels of Discrimination and Psychological Distress, California, 2005. *Preventing chronic disease*, 9.
5. California Health Interview Survey. (2011). CHIS 2009 Methodology Series: Report 1 - Sample Design. Los Angeles, CA: UCLA Center for Health Policy Research. Accessed at: [http://healthpolicy.ucla.edu/Documents/Newsroom%20PDF/CHIS2009\\_method1.pdf](http://healthpolicy.ucla.edu/Documents/Newsroom%20PDF/CHIS2009_method1.pdf)
6. Carpiano, R. M. (2008). Actual or potential neighborhood resources and access to them: Testing hypotheses of social capital for the health of female caregivers. *Social science & medicine*, 67(4), 568-582.
7. Caughy, M., O'Campo, P., Xue, X., & Wang, M. C. (1997). Neighborhood risk factors for low birthweight in Baltimore: a multilevel analysis. *American journal of public health*, 87(7), 1113-1118.
8. Drapeau, A., Beaulieu-Prevost, D., Marchand, A., Boyer, R., Preville, M., Kairouz, S. (2010). A life-course and time perspective on the construct validity of psychological distress in women and men. Measurement invariance of the K6 across gender. *BMC Medical Research Methodology*, 10: 68.
9. Gee, G. (2002). A multilevel analysis of the relationship between institutional and individual racial discrimination and health status. *American Journal of Public Health*, 92: 615-623.
10. Harpham, T. (2008). The measurement of community social capital through surveys. In *Social capital and health* (pp. 51-62). Springer New York.

11. Healthy People 2020. (2011). Goals and Objectives: Social Determinants of Health. Department of Health and Human Services, accessed at: [www.healthypeople.gov](http://www.healthypeople.gov).
12. Hoeffel, E.M., Rastogi, S., Kim, M.O., Shahid, H. Issued: March 2012. The Asian Population: 2010. *The Census Briefs*. U.S. Department of Commerce, Economics and Statistics Administration. United States Census Bureau.
13. Iceland, J., Goyette, K. A., Nelson, K. A., & Chan, C. (2010). Racial and ethnic residential segregation and household structure: A research note. *Social Science Research*, 39(1), 39-47.
14. Kawachi, I., Kim, D., Coutts, A., & Subramanian, S. V. (2004). Commentary: Reconciling the three accounts of social capital. *International Journal of Epidemiology*, 33(4), 682-690.
15. Kessler, R. C., Green, J. G., Gruber, M. J., Sampson, N. A., Bromet, E., Cuitan, M., ... & Zaslavsky, A. M. (2010). Screening for serious mental illness in the general population with the K6 screening scale: results from the WHO World Mental Health (WMH) survey initiative. *International Journal of Methods in Psychiatric Research*, 19(S1), 4-22.
16. Kim, D., & Kawachi, I. (2006). A multilevel analysis of key forms of community- and individual-level social capital as predictors of self-rated health in the United States. *Journal of Urban Health*, 83(5), 813-826.
17. Lauderdale, D.S. & Kestenbaum, B. (2000). Asian American ethnic identification by surname. *Population Research and Policy Review*, 19; 283-300.
18. LaVeist, T., (1993). Segregation, poverty, and empowerment: health consequences for African Americans. *The Milbank Quarterly*, 41-64.
19. LaVeist, T., Pollack, K., Thorpe, R., Fesahazion, R., & Gaskin, D. (2011). Place, not race: disparities dissipate in southwest Baltimore when blacks and whites live under similar conditions. *Health affairs*, 30(10), 1880-1887.
20. Leader, A. 2008. The predictive validity of a social capital index in routine breast and cervical cancer screening. (Doctoral dissertation). The George Washington University, Washington D.C. Available from ProQuest Dissertations and Theses database. (UMI No. 3297445)
21. Lochner, K., Kawachi, I., & Kennedy, B. P. (1999). Social capital: a guide to its measurement. *Health & place*, 5(4), 259-270.
22. Macinko, J., & Starfield, B. (2001). The utility of social capital in research on health determinants. *Milbank Quarterly*, 79(3), 387-427.
23. Martison, M., & Minkler, M. (2006). Civic engagement and older adults: A critical perspective. *The Gerontologist*, 46(3), 318-324.
24. Massey, D. S., & Denton, N. A. (1988). The dimensions of residential segregation. *Social forces*, 67(2), 281-315.
25. Massey, D. S., & Denton, N. A. (1989). Hypersegregation in US metropolitan areas: Black and Hispanic segregation along five dimensions. *Demography*, 26(3), 373-391.
26. Mirowsky, J., & Ross, C.E. (2002). Selecting outcomes for the sociology of mental health: Issues of measurement and dimensionality. *Journal of Health and Social Behavior*, 43:152-170.
27. Mitchell, C. U., & LaGory, M. (2002). Social capital and mental distress in an impoverished community. *City & Community*, 1(2), 199-222.

28. Morello-Frosch, R. & Jesdale, B.M. (2006). Separate and Unequal: Residential Segregation and Estimated Cancer Risks Associated with Ambient Air Toxics in U.S. Metropolitan Areas. *Environmental Health Perspectives*, 114(3), 386-393.
29. Morello-Frosch, R., & Lopez, R. (2006). The riskscape and the color line: examining the role of segregation in environmental health disparities. *Environmental Research*, 102(2), 181-196.
30. Nazari, S. S. H., Mahmoodi, M., & Naieni, K. H. (2013). Residential segregation of socioeconomic variables and health indices in Iran. *International journal of preventive medicine*, 4(7), 767.
31. Nuru-Jeter, A., Williams, C. T., & LaVeist, T. A. (2008). A methodological note on modeling the effects of race: the case of psychological distress. *Stress and Health*, 24(5), 337-350.
32. Omi, M., & Winant, H. A. (1994). *Racial Formation in the United States: From the 1960s to the 1990s*. Psychology Press.
33. Putnam, R.D. (1995). Tuning in, tuning out: The strange disappearance of social capital in America. *PS: Political Science & politics*, 28(04), 664-683.
34. Sampson, R. J., & Wilson, W. J. (1995). Toward a theory of race, crime, and urban inequality. *Race, crime, and justice: A reader*, 177-190.
35. Steptoe, A., & Feldman, P. J. (2001). Neighborhood problems as sources of chronic stress: development of a measure of neighborhood problems, and associations with socioeconomic status and health. *Annals of Behavioral Medicine*, 23(3), 177-185.
36. Trinh-Shevrin, C., Islam, N. S., & Rey, M. J. (Eds.). (2009). *Asian American communities and health: Context, research, policy, and action* (Vol. 22). Jossey-Bass.
37. Turner, M. A. (2002). Discrimination in metropolitan housing markets: National results from phase I of HDS2000.
38. Van der Gaag, M., & Webber, M. (2008). *Measurement of individual social capital* (pp. 29-49). Springer New York.
39. Walton, E. (2009). Residential segregation and birth weight among racial and ethnic minorities in the United States. *Journal of health and social behavior*, 50(4), 427-442.
40. White, K., & Borrell, L. N. (2011). Racial/ethnic residential segregation: framing the context of health risk and health disparities. *Health & place*, 17(2), 438-448.
41. Williams, D. R., & Collins, C. (2001). Racial residential segregation: a fundamental cause of racial disparities in health. *Public Health Reports*, 116(5): 404-416.

# **Can Political Empowerment Improve Health Equity in Segregated Asian American Neighborhoods? Recommendations for Public Health from a Case Study of Three California Counties**

## **ABSTRACT**

In this paper, we explore health promotion strategies for public health departments aimed at addressing the factors associated with racial residential segregation and the health among Asian Americans. Asian Americans are now the fastest growing racial group in the U.S., and are increasingly becoming residentially segregated. Racial residential segregation has been associated with damaging health impacts among racial minorities due to the geographic accumulation of social and economic disadvantage, such as concentrated poverty and poor neighborhood quality, in racial/ethnically dense neighborhoods. Research literature on how Asian American communities are coping with the experiences of increased residential segregation is limited. We used in-depth interviews in San Francisco, Fresno, and Orange Counties to explore whether improving political empowerment can be utilized by public health agencies as a strategy among Asian American communities, especially in segregated neighborhoods, to improve health. Findings suggests several opportunities to improve the political empowerment of Asian Americans as a health promotion strategy.

## **INTRODUCTION**

### **Residential Segregation, Political Empowerment, and Asian American Health**

Residential segregation between Whites and people of color has been recognized as a fundamental cause of racial health disparities (Williams & Collins, 2001; Braveman et. al., 2011). Healthy People 2020 emphasizes the need for public health agencies to address how “racial groups experience ‘place’ and the impact of ‘place’ on health as fundamental to the social determinants of health” (Koh et. al., 2011; healthypeople.gov, 2011). Racial residential segregation (hereafter residential segregation) has been associated the geographic accumulation of social and economic disadvantage, such as concentrated poverty and poor neighborhood quality, in racial/ethnically dense neighborhoods (Massey & Denton, 1993; Williams & Collins, 2001; Acevedo-Garcia & Lochner, 2003; LaVeist, 2011; (Nuru-Jeter & LaVeist, 2011).

While much of literature on segregation and health has focused on African Americans, the studies on the impact of residential segregation and the health of Asian Americans is sparse and the evidence is mixed. Asian Americans are now the fastest growing

racial group in the U.S. and have become more residentially segregated from whites over the past 30 years (Logan & Zhang, 2013). Metropolitan areas with the greatest growth in Asian populations also experience the greatest Asian-White segregation, potentially resulting in highly concentrated ethnic enclaves (Iceland & Scopilliti, 2008). In addition, the most recent census data show that on average Asians are increasingly living in poorer neighborhoods than whites (Logan, 2011). These trends may have significant implications for population health in general, and health inequities more specifically.

The National Coalition for Asian Pacific American Community Development (2013) found that during the recent recession, Asian American poverty increased 37%, higher than the total U.S. poverty population (27%). Furthermore, nearly 50% of the country's Asian American poor live in the country's 20 most expensive real estate markets, including San Jose-Sunnydale-Santa Clara, CA, Anaheim-Santa Ana-Irvine, CA, and San Francisco-Oakland-Fremont, CA. No other poverty population is as significantly concentrated in these most expensive real estate markets (11% of the total White US poverty population, 15% of the total Black poverty population, and 27% of the total Hispanic poverty population live in the top 20 most expensive MSAs), potentially fueling disparities in homeownership and compounding the problems of living in poverty. Asians have substantially lower incomes than do whites; and even when their incomes are closer to that of whites, they live in neighborhoods of lower quality (Logan, 2011). Evidence of the health effects of residential segregation among Asian Americans is limited but growing (Gee, 2002; Morello-Frosch & Jesdale, 2006; Downey, et. al., 2008; Walton, 2009; Mason, et. al., 2009; Gaskin, et. al. 2011). Morello-Frosch & Jesdale (2006) found that Asian Americans living in extremely segregated (multi-group dissimilarity index  $\geq 60\%$ ) neighborhoods had a 32 percent higher relative risk of cancer related to air pollution compared to those living in less segregated neighborhoods. Carreon (2013) found that, among Chinese and Vietnamese, racial residential segregation has also been associated with worse access to preventive care. Segregation, however, has also been associated with positive effects for Asian Americans, such as a lower likelihood of low-birth weight babies and the clustering of culturally-specific resources such as Asian-serving community health organizations. This is in part due to forms of social capital that bridge co-ethnics and link socially isolated groups to other higher-resourced groups. (Walton, 2009; Gee, 2002).

Several Asian subgroups tend to live in ethnic enclaves, which have arisen from a variety of factors including, discriminatory housing practices, as a refuge against racism (e.g. targeted violence), and as well as a place to develop a sense of community (Trinh-Shevrin, 2009). This evidence suggests a more complex residential segregation-health relationship for Asian Americans, where immigrant enclaves provide advantages for health but in other contexts may concentrate poverty and social disadvantages important to health. The latter suggests potential benefits and resiliency-based factors. One factor purported to be an important influencer of the residential segregation and health relationship has been individual and collective forms of political empowerment (Morello-Frosch & Jesdale, 2006; Kawachi & Berkman, 2000; LaVeist, 1993; LaVeist, 1992). Political participation and civic engagement are often explored at an individual

level, which includes such acts as voting, volunteerism and civic participation in political activities. The term political empowerment, used here, refers to collective forms of both political participation and civic engagement. At a collective level, political empowerment includes political activities of community-based organizations and political parties, as well as public demonstrations or protests (Ekman & Amna, 2012). Theoretical considerations as well as empirical evidence suggests that forms of collective political empowerment may impact the health of different populations differently than individual acts of political and civic engagement (Kim & Kawachi, 2006). One outcome of collective forms of political empowerment is the expansion of social networks, which can enhance psychological and social resources (Batista & Cruz-Ledón, 2008). A study with older predominately White women who were part of a social activism group found that empowerment and social activism were positively related, and that both were linked to health and well-being. (Hutchinson & Wexler, 2007). LaVeist showed that high degrees of segregation enabled political power in Black communities countering the negative health effects of residential isolation (LaVeist 1993).

Less work has focused on political empowerment among Asian Americans and its relationship to health. Traditional measures of political empowerment have focused on individual behaviors like voting and monetary political contributions, which may only partially explain Asian Americans political expression (Lien et al., 2001). Instead, analyzing “contextual variables such as community organization efforts or the presence of [Asian] candidates appear to be important” for a more complete picture Asian Americans political participation” (Aoki & Nakanishi, 2001) because they reflect socialization processes important to political participation, especially among immigrant communities, such as Asian Americans (Cho et al, 2006; Kim & Kawachi, 2006). Understanding the unique dimensions of Asian American political empowerment serves as important dynamic for understanding the potential mechanisms for the segregation-health relationship and suggests a strength-based, social justice oriented health approach to improving population health.

### **Opportunity Spaces: Asian American Segregation and Political Empowerment**

A key role of public health practitioners, especially those in local health departments, has been to address the social injustices underlying the distribution of disease and illnesses (Hofrichter & Bhatia, 2010). Historically public health has been closely associated with themes of social movements designed to achieve social equality and democracy, as well as self-determination and liberation from oppression. Emerging public health literature suggest that political empowerment is a hallmark of health promotion, especially for isolated communities (Robertson & Minkler, 1994; Martinson & Minkler, 2006). Understanding the elements that foster Asian American political empowerment may serve as an important dynamic for understanding the mechanisms for the residential segregation-health relationship. Conventional research on citizen engagement focuses on electoral participation, where voting has been viewed as the primary means of political participation (Ekman & Amna, 2012) (See Appendix-3). Actions in-between elections are also considered valuable-- demonstrations, strikes,



boycotts and other forms of protest behavior—giving way for wider definitions of electoral participation such as “actions of private citizens by which they seek to influence or support government and politics”; “all voluntary activities by which individual citizens intended to influence either directly or indirectly political choices at various levels of the political system” (Milbrath, Goel, 1977; Kaase, Marsch, 1979; Ekman & Amna, 2012).

## **A Guiding Framework for Asian American Political Empowerment**

Asian Americans are predominately foreign-born and have varying citizenship status, may come from homelands where civic engagement was dangerous, or find language or other structural barriers to participating in political activities. In order to examine if, how, and why Asian Americans participate or don't participate in political and civic activities, a one-size-fits-all approach would be flawed. Asian Americans are often examined as a subsample of general population-based studies, rather than as a study's focal point. Wong and colleagues (2011) emphasize that those concerned with understanding the political participation of Asian Americans and other immigrant groups must instead focus on that racial or ethnic groups as the unit of analysis. Such an approach, considers more nuanced, culturally specific influences of politically-oriented beliefs and behaviors. Figure 1 depicts such a framework, contextualizing several considerations, including 1) *racial identity formation*--i.e., how mainstream political institutions and acculturation processes engage Asian Americans, including whether they are viewed as a single group for bureaucratic convenience versus shared political interests; 2) *involvement and membership in civic associations*, and whether they are oriented around ethnicity, labor, social services, or religion; 3) *political party identification* and relationships with these parties; 4) *residential contexts*, which refers to a myriad of social processes and geographic structures that shape racial attitudes, voting patterns, and hate crimes; and 5) *immigrant socialization*, given the high percentage of Asian American immigrants. We incorporated and expanded this framework in order to explore the influences of collective forms political participation (which we term political empowerment to encompass both) unique to the Asian American experience, to inform health promotion strategies.

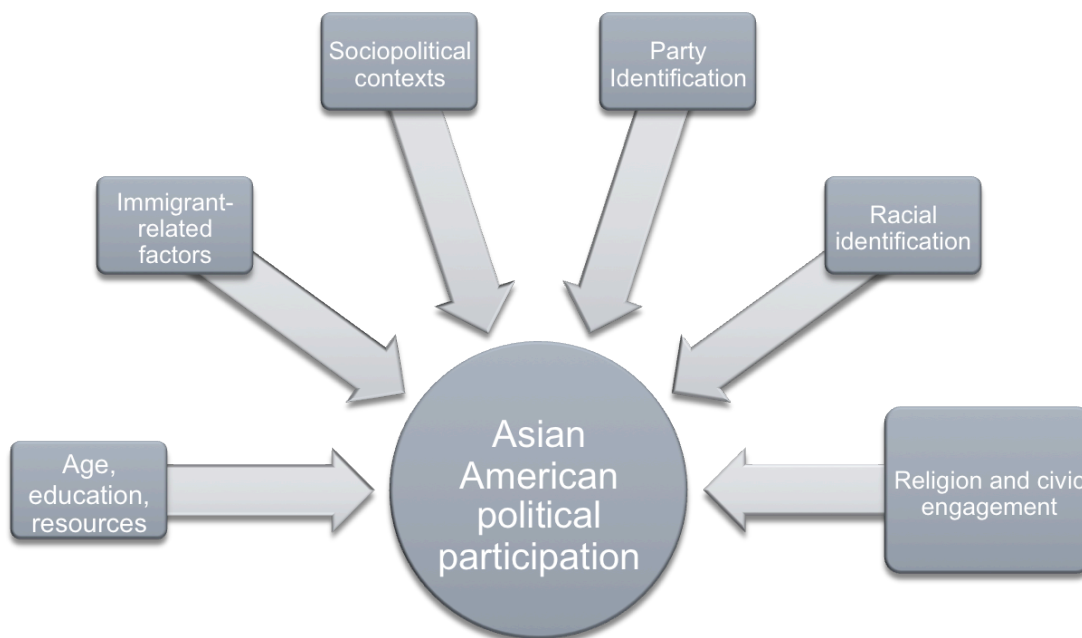


Figure 1. Explaining Asian American Political Participation. Wong JW, Ramakrishnan SK, Lee T, Junn J. ,2011

Supporting political empowerment activities in communities as a health promotion strategy requires a framework for action. The Bay Area Regional Health Inequities Initiative (BARHII) framework was developed to guide health departments to address “upstream” social, political, and environmental determinants of health and equity ([www.barhii.org](http://www.barhii.org)). As depicted in figure 2, this framework recognizes current practices of health departments which focus on risk behaviors (solid boxes) and interventions (dashed boxes). In order to address root causes of health inequities, BARHII’s framework specifically recognizes living conditions (such as residential segregation), institutional power (including government agencies and non-profit organizations), and social inequities. This framework serves as an orientation for developing interventions that can be implemented by both community –based organizations and government health agencies.

In this paper, we explore current forms of political empowerment in segregated and highly-concentrated Asian communities. We explore various forms of political empowerment including civic education of newly arrived immigrants and youth, voter registration and education of new citizens, participation in the governance of community-based initiatives, legislative advocacy, and running for elected office. We delineate opportunities to improve the health of segregated Asian communities and to develop feasible public health interventions to improve the health equity of Asian Americans.

BAY AREA REGIONAL HEALTH INEQUITIES INITIATIVE

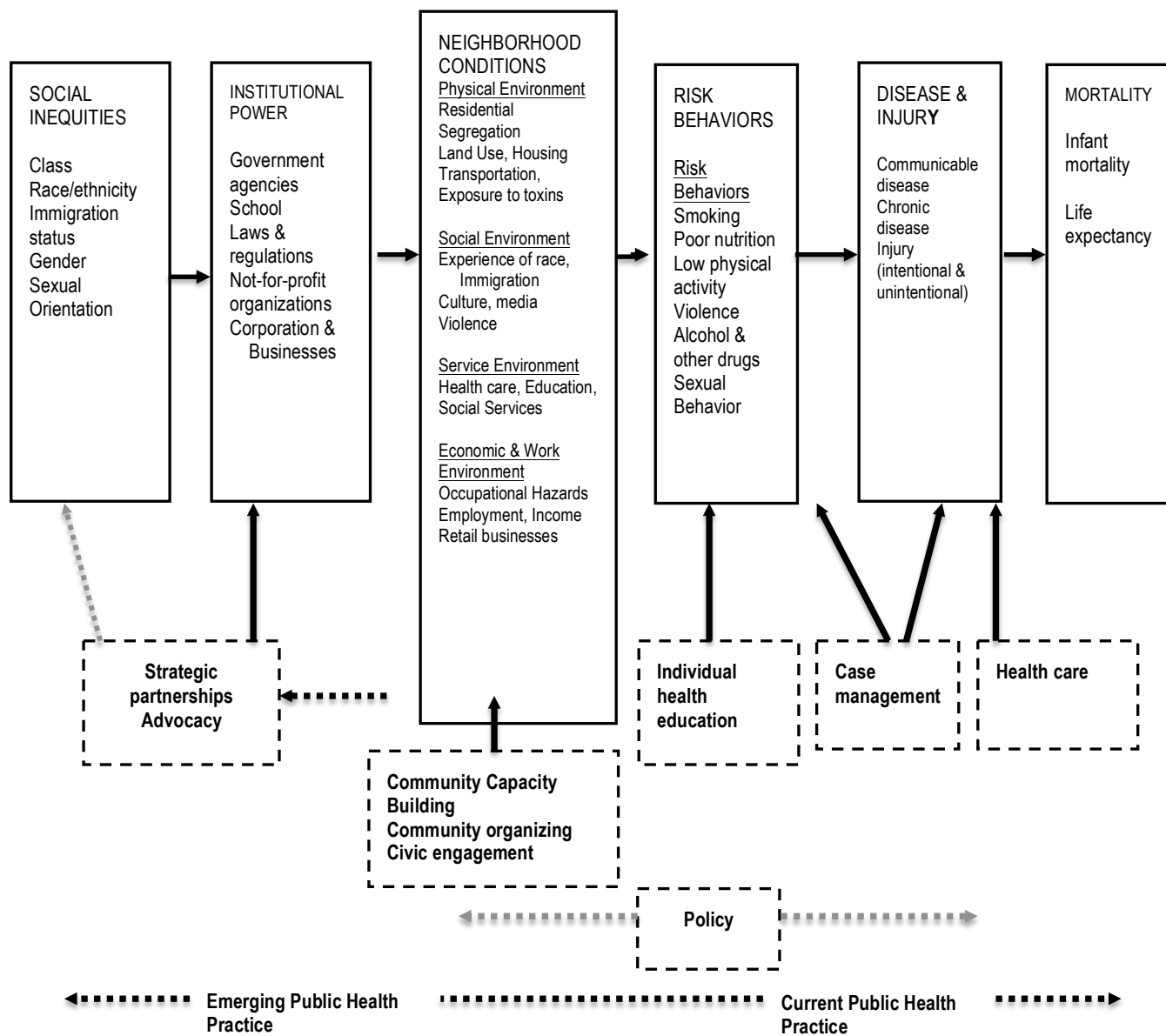


Figure 2. Bay Area Health Inequities Initiative Framework for Reducing Health Inequities, 2010. [www.barhii.org](http://www.barhii.org)

## METHODS

This multi-method qualitative investigation utilized a multisite case study approach consisting of document reviews, key informant interviews, and participant observations. We chose California as our case-study for several reasons. California is home to the largest number of Asian Americans in the country (32.1%) and can be found in large concentrations in established centers, such as the Bay Area and Southern California, and in emerging communities, such as Sacramento and Fresno.

### Selection of Cases

County-level demographic data from the U.S. Census were reviewed to select our case sites. Counties were chosen as the unit of analysis because health departments have jurisdiction at the county level. In addition, Asian-American serving community-based organizations often extend their reach to the county level, especially because county officials often set policies and budgetary priorities important to health and social services.

We considered three demographic criteria for inclusion: 1) level of residential segregation 2) residential concentration, and 3) population growth. We considered counties with moderate and high levels of Asian-White residential segregation in order to examine contextual effects. A county's segregation level was considered moderate if its dissimilarity index<sup>1</sup> was 0.3-0.4, and high if its dissimilarity index was higher than 0.4 (Massey & Denton, 1988; Bell, et al., 2006; Nazari et al., 2013). Among these counties with moderate to high-levels of segregation, we then considered Asian American concentration<sup>2</sup> and Asian American population growth between 2000-2010. We expected that counties with high concentrations of Asian Americans could provide rich, historical and innovative examples of political empowerment activities (Cho et al., 2006).

We also deliberately considered counties with high Asian American population growth, because these communities offer sites where racial, inter-generational and/or immigrant-related community tensions arise (Cho et al., 2006). These same communities also may divulge new opportunities and strategies for building political empowerment and other forms of social capital, particularly amongst immigrants, which is important to accessing health-promoting resources and improving population health.

---

<sup>1</sup> The index of dissimilarity measure of spatial evenness, and is a common measure of residential segregation. It represents the proportion of minority members that would have to change their area of residence to achieve an even distribution among another racial group, and is expressed as a score between 0 and 1, with 0 being an even residential distribution of two groups in an area, and 1 being

<sup>2</sup> Concentration--or the relative density of one racial group to another--and dissimilarity--a measure of how evenly a racial group resides relative to another group--are different dimensions of residential segregation, and groups experiencing high degrees of more than one dimension can be affected by residential segregation differently.

**Table 1. Case selection criteria, counties with moderate-high residential segregation**

	High Asian American Population Growth (2000-2010)	Low Asian American Population Growth (2000-2010)
High Asian American % (2010)	<i>Orange County</i>	<i>San Francisco County</i>
Low Asian American % (2010)	<i>Fresno County</i>	<i>(did not study)</i>

Source: 2010 U.S. Census

Based on these inclusion criteria, the following counties were selected for study inclusion: San Francisco County, Orange County, and Fresno County (Table 1). Choosing these counties allowed a comparison of various forms of political empowerment within different contexts. We did not study the fourth context because key informants were not identified in these counties, and financial constraints limited in-person interviews and participant observations.

### **Selection of Key Informants**

Key informant interviews served as our primary data collection strategy. Key informants were identified through preliminary informant interviews, website and documents reviews, and snowball sampling. Key informants included leaders from the county’s public health department, as well as community leaders and elected officials, working to promote Asian American political empowerment.

Key informant interviews provide in-depth insights regarding community and organizational affairs, as well as historical background around important decisions or actions. (Yin, 2014). Using a semi-structured interview guide, we asked leaders at community-based organizations about assets and challenges in Asian American neighborhoods, including what is working well to improve health, the political participation of Asian Americans in their communities, and suggestions for their local health departments as to how to address root causes of health disparities (See Appendix-2 for interview guide). This included guided conversations about organizational and agency strategic goals and priorities for improving health equity; barriers to improving Asian American health in the County; local examples of Asian American political empowerment; and recommendations for and from health departments for how to improve health equity.

## **STUDY PROCEDURES**

Twenty-four key informants were interviewed across the three sites, which included executive directors and senior staff of community-based organizations serving Asian Americans (14); Asian American elected-officials (3); and leaders in health departments (7). Each interview took place in person or over the phone, and lasted 60 to 90 minutes. Interviews were audio recorded and written notes were taken.

We also conducted document reviews and participant observations to contextualize and supplement the key informant interviews. We analyzed organizational reports such as community profiles, strategic plans, and websites and compared: 1) the mission, goals, and activities of the community-based organizations; 2) their strategic goals and the motivation for those goals; 3) practices to address structural causes of racism among Asian Americans; 4) partnerships and processes utilized in effective constituency engagement; 5) political empowerment strategies; 6) health equity and health promotion strategies; 7) opportunities and barriers to achieving goals and suggested strategies; and 8) other factors determined through preliminary key informant interviews. Specific areas of interest include whether health agencies have working relationships with Asian American political organizations, and whether the use of pan-Asian identity is consciously and critically used in addressing key determinants of health and social inequities.

Participant observations were used to better understand the relationships and hierarchy of leadership among the various community organizations and governmental agencies. Participant observation is a hallmark of qualitative sociological studies and is generally used to guide relationships with informants; help the researcher get a feel for how things are organized and prioritized, how people interrelate, and for the cultural parameters; show the researcher what the cultural members deem to be important in manners, leadership, politics, social interaction, and taboos; and provide the researcher with a source of questions to be addressed with participants (Kawulich, 2005. p.91). Our participant observations included attending policy hearings, community dialogues and workshops, and site visits at community-based organizations. We specifically sought to observe how Asian American political leadership is expressed and by whom; what activities are discussed as viable strategies to build political participation, power, and activism, and who participates in these activities.

### **Data Analysis and Coding**

We used a combined deductive and inductive approach to collect and analyze data, having both pre-defined questions about structural barriers, institutional strategies and opportunities, and the role of public health departments, while also maintaining flexibility in allowing data-driven themes to emerge. Transcripts were initially coded based on a priori domains from the semi-structured interview guide, though newly emerging domains were also explored and coded. All analyses were conducted using Dedoose 4.12, (SocioCultural Research Consultants, LLC, 2014, [www.dedoose.com](http://www.dedoose.com)). This

research was approved by the University of California, Berkeley Committee for the Protection of Human Subjects.

## KEY FINDINGS

Below we present findings from our analysis, organized by key domains from our interview guide, and discuss similarities and distinctions between our case-sites. We considered key findings to be themes supported by all three cases. Additionally, we provide potential implications for public health practitioners, particularly those working at local health departments (LDHs) and community-based organizations (CBOs).

Table 2 presents a contextual profile of the three case sites. San Francisco has a high level of Asian-White segregation ( $Dx=0.467$ ), a large Asian American population (288,529 and 36% of county's population), and low Asian American population growth (14%). Orange County has high Asian-White segregation ( $Dx=0.416$ ), large Asian American population (597,748, and 20% of population), and high Asian-American population growth (41%). Fresno has a moderate level of segregation ( $Dx=0.353$ ), moderate-sized Asian American population (101,134, and 11% of population), and high Asian-American population growth (38%).

**Table 2. Selected Contextual Characteristics of Cases (California Counties)**

	Orange County	Fresno County	San Francisco County
Asian American Concentration*	597,748	101,134	288,529
Asian Americans, Proportion of Population*	(20%)	(11%)	(36%)
Population increase, Asian Americans between 2000-2010*	41%	38%	14%
Asian-White Residential Segregation (Dissimilarity Index)*	41.6 (High)	35.3 (Moderate)	46.7(High)
% of Registered Asian Americans who voted**	57.12	58.42	64.59

\* U.S. Census, 2010

\*\* Data was provided by the Statewide Database at UC Berkeley School of Law using 2012 general election data. The Statewide Database's files contain registration data that are broken down by ethnicity. These data were derived from methodology that matches Asian American surnames on voter registration cards to an ethnic surname list (see Lauderdale & Kestenbaum, 2013 for surname methodology).

San Francisco is home to one of the largest and oldest Asian Americans populations in the country. Over one-third (36%) of the population is Asian American, a 14% from 2000-2010. San Francisco is also home to long-standing Asian American civil rights activism, which was birthed in the 1960's and 1970s in Asian American neighborhoods fighting gentrification, on college campuses advocating for ethnic study programs, and more generally challenging hostility and racism experienced by all Asian Americans during the Vietnam War (Takaki, 1989). San Francisco-based organizations continue advocating for racial justice for Asian Americans living in San Francisco. At the time of the writing of this publication, the city boasts its first Chinese- and Asian- American mayor. 20% of San Francisco registered voters were Asian American. One-fifth (20.6%) of San Francisco residents reported fair or poor health (California Health Interview Survey, 2011). San Francisco was ranked as the 22<sup>nd</sup> (out of 58) healthiest California county (University of Wisconsin citation, 2012).

Fresno's Asian American population increased by 38% from 73,403 to 101,134 between 2000 and 2010, faster than any other racial group. Hmong Americans are the largest Asian American ethnic group, comprising more than 30% of the region's Asian American population, which is also the second largest Hmong American population in the nation. Indian, Filipino, and Laotian American follow in size. About half of the Asian Americans are foreign-born. Community-based organizations such as Fresno Center for New Americans, Southeast Asian Resource Action Center, Fresno Interdenominational Refugee Ministries, and Stone Soup are now providing social and health services and civic education classes to Asian American communities, their community organizing and political activities have built a base of young advocates in the region, including recent Asian American elected officials. Still, about only 4.6% of registered voters in Fresno County were identified as Asian American. Fresno County was ranked as the 46<sup>th</sup> healthiest California county (University of Wisconsin, 2012)

Orange County is home to the nation's third largest Asian American population in the U.S., and saw a 41% increase in its Asian American population between 2000 and 2010, faster than any other racial or ethnic group. Its Asian residents are diverse, with nearly equal proportions of Chinese, Korean, Japanese, and Korean. Orange County registered voters were Asian American (UC Berkeley Law Center for Research, 2014). In Orange County, a quarter (25.2%) of respondents reported being in poor or fair health (California Health Interview Survey, 2011) yet was ranked as the 6<sup>th</sup> healthiest California county (University of Wisconsin, 2013).

## **Domains and Key Themes**

### **Domain 1: Asian American Political Empowerment Examples and Exogenous Factors**

*“Asian Americans in our community are more politically active and people are starting to pay attention... We are beginning to believe that we can change things at a policy level for the first time” (Co- Director, Community-based organization, Orange County)*



*Youth Engagement.* Key informants shared several strategies being implemented to increase political empowerment and civic engagement among Asian Americans. Several community-based organizations throughout our three case sites have a long history of providing civic education classes to inform new citizens about voting and civic engagement processes, as well as voter registration and voter education in Asian neighborhoods. However several organizations across all our sites noted youth mobilization as an emerging strategy, in particular, because first and second generation Asian Americans are often more socialized to the American political system compared to their immigrant parents (Wong et al., 2011). Youth development is considered a long-term health promotion strategy, as those voting early in life are more likely to be civically engaged, socially connected, and possess the social capital to access opportunities that lead to better health for themselves and community. As one community organizer noted, “One of the most important elements of (youth development) work is that we will be empowering new, young leaders in communities and communities of color.” Several community organizations talked about the importance of youth engagement for 1) individual change and 2) policy change. As one community leader working in Fresno stated, youth development leads to “individual change because there are direct health benefits due to acquiring a sense of agency and empowerment, and a sense of what is possible in the future sense of hope.” Community organizations also find youth development effective for policy change, because young people meeting with legislators in the State Capitol telling their stories sends a very powerful and transformative message when you see young people moving legislators. “It is very different when young people become the change they want to see happen in their schools and neighborhoods and share this with elected officials,” shared one youth advocate.

*Narrative Change.* Several community leaders echoed the importance of fostering a new narrative of Asian Americans being more civically and politically empowered as an important strategy. One recent example of Asian American-focused political empowerment work in the Bay Area is the election of the first Filipino state legislator in 2012, who also sits on the State Assembly’s select committee on Boys and Men of Color. He stated, “it has been a priority and an obligation for me to support and promote the vision of Filipinos and other Asian Americans in my community, because those voices aren’t always represented.” In Orange County and Fresno County, participants of youth development work at two of the agencies we interviewed have resulted in the first Cambodian and Vietnamese elected official in their counties. One such Asian American elected official in Orange County echoed the implication of successfully assuming elected office: “we need examples and stories of civic engagement programs that are unique to the Asian American experience, which are usually overlooked by traditional capacity building projects. Asian Americans come from very diverse homelands and our communities may have very diverse experiences living here (in America).”

*Cross-racial Coalition Building.* Several community leaders pointed out that building coalitions across racial communities is paramount to strengthening the political voice of Asian Americans, and thus improving the health and well-being of Asian American

communities. This theme was a strong, persistent theme throughout each site. Some view cross-racial coalition building as opportunistic. As one statewide Asian American leader stated, “we stress alliance building with other communities of color and working class communities...We have to move our community forward as well as the people we work with the most. We will be stronger with others. So we work closely with labor unions, for all its challenges, because it is a vehicle and working closely with other communities of color who are sometimes pitted against (our) Asian-only coalitions. Systems continue to fracture and divide people of color. We feel there are strengths if communities come together. We invest a lot in these (cross-cultural) alliances.” Other leaders state that cross-racial coalitions are strategic and necessary, though risky. One key informant from San Francisco stated, “But we should avoid uncritical racial solidarity. We have to have critical racial solidarity informed by our values, not just for political wins, or else we may give up our unique perspective.” Cross-racial coalition building may also be based on fear that Asian American communities will continue to be invisible especially as the Latino population grows. One informant stated, “At the end of the day, building sustainable power is about building cross-coalitions among racial communities. Latinos are going to have a huge way for California. A fear for us is that where will our community align? We do need to work with other communities of color or we will continue to be ignored.”

***Implications for public health: Asian American-led organizations are increasingly focused on civic engagement and political empowerment, and include focusing on youth development, narrative change, and multi-racial collaboration, as strategies for improved health and equity.***

## **Domain 2: Barriers to improving Asian American health equity**

*“Traditional systems are still not getting at structural factors such as residential segregation and immigration reform, as well as institutional barriers like providing information and services in our language”- Asian American community leader, Sacramento*

Language access. Key informants described a number of structural and institutional barriers to improving the health and well-being of Asian Americans. This included language access and access to health care and culturally appropriate social services, specifically for undocumented residents. This was commonly referenced along with stating that Asian Americans - and their diversity - remain invisible. In one context, a community leader stated, “It’s an uphill battle. People don’t get that there are Asians in the Central Valley. Much more (culturally-appropriate resources) gets to L.A. and San Francisco. The Asian population looks vastly different here than over there.” Another Southern California respondent pointed out “people don’t retain historical memory of what (anti-immigrant and racist-ordinances) happened in our communities, such as the moratorium on new buildings to slow the influx of Asian immigrants, or the policy requiring English only signs on businesses, and English only books in public libraries”.

These sentiments are not surprising, as a report by the Asian American Center for Advancing Justice (2013) expressed concern that one in five California Asian American households is linguistically isolated, where everyone over the age of fourteen has limited English proficiency and nearly three-quarters of Asian Americans speak a language other than English at home. In Fresno county, rates of limited English proficiency among Hmong, Laotian, Indian, and Cambodian Americans are higher than Asian Americans overall. As one key Fresno-based informant expressed, “Without sufficient language capacity, certain Asian American groups, especially refugees and immigrants from Southeast Asia, rely more heavily on family or community members for information for health and other social services, which is limiting. The same is true for participating in the election (and voting) process.”

*Lack of data and funding.* Several informants felt that there is a disproportionate lack of funding from health departments and philanthropy to specifically address the unique challenges facing Asian Americans. One frustrated director of a CBO stated, “we have been told that (funding Asian American health programs) is not going to get the biggest bang for their buck”. One reason may be due to a lack of data to warrant more funding that in turn reinforces the healthy model minority myth. More than one health department official admitted, “due to lack of data on Asian Americans, we are not able to show those disparities to justify more funding, although I know it is not right.” This same informant states that their local department health officer repeatedly publically cites that Asian American data show that they are healthy and doing very well, despite public and private attempts to question and qualify these statements. Meanwhile, another community leader noted “it can be difficult to work with foundations who fund a lot more social determinants of health work because they don’t see Southeast Asians as a good community to work with; they say they only have grants for Latinos, Blacks, and whites.”

Some health departments, such as Orange County, do not have capacity to do robust data analysis, due to its health assessment unit being disbanded. When opportunities arose to pay researchers implementing the California Health Interview Survey (the largest state-based population health survey, available in several Asian languages) to oversample Asian Americans, several county governments did not. Key informants have attributed this to a lack of leadership due in part to the institutional history leaving data analysis to hospitals, while in others’ opinion its more attributable to the politically conservative board of supervisors who do not see working on health equity and social determinants of health the role of health departments.

In a briefing on Asian American poverty in California, Asian American community-based, philanthropic, and governmental leaders stressed that more data analyzing Asian Americans—as well as disaggregated by Asian ethnicities—needs to be prioritized and disseminated in the scientific community as well as in the mainstream media. In another forum on Asian American political affairs, researchers and Asian American community activists both stressed the importance of dispelling the model minority myth with research and data collection that seeks to investigate Asian American experiences, rather than using sub-samples or oversamples of large population-based studies.

*Racial politics and competition for voice.* In each county, racial politics became a current of concern. Several informants felt that Asians continued to fall in terms of importance when it came to racial health equity initiatives. One informant stated “we are often pitted against Latinos for services, political leadership, and funding,” while several others bluntly pointed out their Asian-led organizations “just don’t have the sophistication to demonstrate how their organizing, community development and housing, and youth development work impacts Asian American health outcomes”.

Several others pointed out that Asian immigrants are not being engaged for health policy work in a way that is meaningful or respectful. In one example in a high profile San Francisco ballot campaign led by a prominent, mainstream health organization, discussions of the Chinese community and other Asian constituents were limited to discussions of “a swing vote” without working in partnership with community leaders to learn how to get the community engaged and involved. Instead, the campaign hired translators to translate their ads, and could have instead engaged local organizations to help them better understand the campaign’s purpose. Another activist further explained that his organization seeks to change the perception of Asian Americans as content and apolitical, and disinterested from American democracy, as it masks our needs and reinforces the model minority stereotype.

***Implications for public health: Addressing Asian American health equity continues to be invisible due institutional practices and structural barriers that perpetuate the healthy model minority myth. These require institutional- and structural-level solutions. In addition, Asian Americans advocacy efforts require disaggregated as well as pan-Asian data to be reflected in scientific reports and the mainstream media.***

### **Domain 3: Opportunities for local public health departments to support Asian American political empowerment as a health equity strategy**

*Engagement.* Community leaders shared and recommended several collaborative approaches to improving social determinants of health equity, such as increased political empowerment, among Asian Americans. One reoccurring theme was to employ community-based participatory projects, such as the research on wage theft in San Francisco Chinatown, a project of the San Francisco Public Health Department, Chinese Progressive Association and UC Berkeley (Minkler et al., 2014). This project was highlighted as an example of how health departments can engage with community organizations and other institutions to build political empowerment on a prioritized issue affecting the health and well-being of Asian communities, while also and helping to train community-based organizations to measure and demonstrate the effectiveness of their interventions.

*Leadership.* Another consistent recommendation was for the health department to use its authority to champion equity amongst its governmental colleagues in other sectors. For example, local health departments can use their expertise to highlight social, political, and historical inequities, and the role that structural racism plays. Furthermore,

community key informants stressed the health department's position to not only make the connections between social factors and health equity, but also to link and fund the government sector with community-based organizations already working with these issues in the Asian American community.

***Implications for public health: Asian American community-based organizations suggest that health officials engage Asian American community members in its decision-making, governance, and research, and use its authority and leadership to highlight the role of social and structural biases in health inequities.***

#### **Domain 4: Community-based examples of building political empowerment as a health promotion strategy.**

*Sons & Brothers Initiative.* Key informants working in community-based organizations shared several potential strategies for supporting political empowerment as a public health promotion strategy. One recommendation was to examine the Sons and Brothers project in California, a \$50 million initiative that aims to improve the social, educational, and health opportunities for young men of color, who disproportionately experience disparities in incarceration rates, high school drop out, school disciplinary actions, and unemployment indicators (California Endowment, 2014). Initially there was limited engagement of Asian American youth. Community-organizations thus began organizing youth to voice their concerns about the lack of inclusion for young Asian American men. As one informant told us, “the available disaggregated data made it clear that certain Asian American subgroups (e.g., Cambodian, Hmong, Lao and Mien) have high rates of poverty and linguistic isolation, and low levels of educational attainment, yet it doesn't appear that any attempt to disaggregate available data was made in funding decisions”. Asian community organizations responded with community-based research efforts as an initial step towards engaging major philanthropic entities around the needs and opportunities of Asian American (as well as Pacific Islander, Native Hawaiian, and Arab, Middle Eastern, Muslim, and South Asian) boys and men of color. The research process was led by Asian Americans and Pacific Islanders in Philanthropy (AAPIP, 2013), in which young men shared their lived experiences. It revealed that Asian American young men, especially those who are undocumented or part of mixed status families, face some of the state's and nation's highest poverty and financial instability.

The mobilization of young Asian American boys and men into the Sons and Brothers initiative led to shared governance and decision-making between community-based organizations and local health departments, such as Fresno County Public Health and representatives of the Fresno Alliance of Boys and Men of Color, to plan and prioritize public health activities. These efforts reached a significant milestone in a dedicated legislative hearing at the Select Committee on the Status of Boys and Men of Color, commissioned to discuss the unique issues and opportunities affecting California's young Asian American men and boys of color, attended by representatives from several Asian American youth groups across the state. For several Asian young men it was their first time meeting a legislator, much less speak before a legislative committee. While this effort is ongoing, several key informants highlighted these efforts as an

example of how community-based organizations partnered with other sectors, such as public health and philanthropy, used a community-based research approach tell a more complete Asian American story that has resulted in not only influencing funding decisions, but to also transforming the lives of Asian American men through the political engagement process.

***Implications for public health: Community-based organizations' strategies to improve the civic engagement and political empowerment provide learning opportunities for public health departments concerned about improving the social determinants of health of Asian Americans. The Sons & Brothers Initiative is one such recent example.***

### **Domain 5: Transforming public health systems as a means to building resident power in Asian American communities**

*Internal Capacity:* When key informants working at local health departments were asked to think about opportunities to expand their health equity strategies, one the most frequently mentioned ideas that other health departments have implored is to build internal leadership and capacity. In Orange County, for example, led by new deputy health officer, managers from different health department programs formed a health equity steering committee. They began by watching the California Newsreel's Unnatural Causes documentary series that examines how violence, historical and structural racism, and the built and social environment drive racial health disparities in the U.S. The initial goal of the screenings was to create a shared space to share practices and strategies for how to address social determinants of health and equity across individual health departments programs, examine their current programs with a social determinants of health and equity framework (such as the BARHII framework, figure 2), and discuss steps to integrate the framework into the department's existing organizational structure. While this work is still in progress, many key informants commented that without such a space to discuss a broader equity framework that includes Asian Americans, "Asian American health will continue to fall to the bottom of the hierarchy of populations in most need" as one health department staff member stated. "Getting leadership and ultimately the Board of Supervisors to acknowledge that public health departments are accountable for addressing factors identified by a social determinants of health and equity framework is an ongoing process."

These dynamics may be important considerations for developing a race-conscious, place-based health promotion strategy. The report "[Left or Right of the Color Line? Asian Americans and the Racial Justice Movement \(2012\)](#)" (ChangeLab, 2012), interviewed 77 of the most influential Asian American racial justice leaders in the US to better understand the racial position of Asian Americans in America. A major finding of the report was that Asian American organizations face pressure to establish political clout in a competitive contest of racial inclusion that includes other racial ethnic minorities. Interestingly, leaders call for a return to the once strong progressive Asian American movement ('60s and '70s), and consistently pointed out that data

disaggregation since then has created divisions. Thus, the “Asian American” label serves less as a political identity than as a demographic category. Racial justice activists believe that organizing around Asian American identity would only be strategic if it were progressive and race-conscious. Organizers and health practitioners who are working to build power and political engagement in Asian American communities may consider a quote from the report’s informants, *“Building multiracial solidarity demands deep political education among Asian American to counter the structural forces that encourage complicity in white supremacy. There is a need to move away from assimilation and toward a model of power sharing”*. One suggestion from a community-based organizer in Orange County was to “have health departments invite us (community organizers) to be a part of their discussions, so that we can help inform their race- and place-based analyses”.

Our analysis suggests that strategies for implementing this multi-racial paradigm are still evolving. In places with a more long-standing empowered Asian American community such as in San Francisco, sub-Asian communities do organize less as a pan-Asian identity and more ethnically specific. Furthermore, these more ethnic-specific communities organize with other Asian ethnic groups, as well as other cross-racial groups. Though this study cannot suggest how this has translated to differences in health outcomes, it does suggest a different dynamic in working to improve Asian American health. In Fresno and Orange Counties, counties with rapidly-growing Asian American populations, a pan-Asian identity is more prevalent in political organizing, even though individuals and smaller organizations maintain specific ethnic identity in cultural and social services. Furthermore, cross-racial collaboration in these two counties are less established, although several key informants in these two case sites expressed cross-racial activities as politically strategic.

*Leveraging Systems Change through Public Health Accreditation.* Another recommendation mentioned by health department staff in all three counties was to use the Public Health Accreditation process to realign priorities and organizational structure around equity and social determinants of health. The public health accreditation process is a voluntary effort to strengthen the quality and performance of the local health departments by assessing whether they are meeting quality performance measures. While the public health accreditation process is voluntary, “it may serve as a means to make the health of underserved populations, such as Asian Americans, and initiatives to strengthen the social determinants of health and equity, such as political empowerment, more possible” described one health department leader. These efforts, while still in their infancy, offer an opportunity to impart systematic guidelines or recommendations whose agency may lack the leadership and framework to address strategies such as building political empowerment of Asian Americans.

*Implementing Patient Protection and Affordable Care Act Programs.* Several health department informants stated that the Patient Protection and Affordable Care Act (ACA) could be used to address Asian American health, such as assuring language access for health care services, to funding place-based initiatives such as the Community Transformation Grants (CTG) program. The CTG was part the ACA’s Public Health



Prevention Fund in 2010 to support policy and environmental approaches prevent the leading causes of death and diseases, and reduce health inequities across population groups, such as racial and ethnic disparities. These funds were celebrated as unprecedented opportunities to fund policy- and community-based health initiatives as well as to fund changes to infrastructure to sustain prevention-focused programmatic investments (Robert Wood Johnson Health Foundation, 2013). Funding is being used to address several environmental and social determinants of chronic conditions and risky behaviors, including tobacco use, physical inactivity, and unhealthy eating. While it is too soon to evaluate the effectiveness of the investments, each of these initiatives are using frameworks that recognize the importance of social interventions such as civic engagement and political empowerment, and focus on racial health disparities.

Unfortunately, in FY2014, the CTG fund was eliminated from the federal budget, jeopardizing continued progress in these communities. Efforts are being made to reallocate federal funds to support these efforts. While this is a setback, a silver lining is that public health agencies are beginning to address determinants such as political empowerment in its programmatic efforts.

***Implications for public health: Building health equity expertise at health departments should include an analysis of how systems and structures reinforce Asian American invisibility and racial hierarchies. Federal initiatives to transform local systems, such as voluntary public health accreditation and the Affordable Care Act's Public Health Prevention Fund, can provide platforms for prioritizing emerging public health practices such as supporting internal and community capacity building, civic participation, and political empowerment.***

## **DISCUSSION**

This multi-case, multi-method study sought to better understand examples of Asian American political empowerment within high/moderate segregated communities with varying contexts (e.g., ethnic concentration, growth, and voter participation) and discuss the feasibility of political empowerment a health promotion strategy. Several themes emerged as important elements of Asian American political empowerment that included a focus on youth development, cross-racial coalition building, civic and voter education, electing Asian Americans into public office. Other forms of political empowerment--such as participating in activities led by formal political parties and public demonstrations and protests -were mentioned but less frequently, and may be a limitation of our sample. Thus other forms not mentioned in this study but discussed in scholarly work may be relevant and worth exploring further.

Figure 3 seeks to organize the previous frameworks on Asian American political participation and BARHII's public health framework for health equity by adopting our findings (in dark blue). This figure is not meant to be comprehensive, but rather to provide a framework that integrates forms of collective political participation within a



health equity framework. Our adapted framework allows for health practitioners in local health departments and community-based organizations to develop strategies to support Asian American political empowerment (examples listed in the blue circle), or factors that our research suggests influences forms of political empowerment (in the blue boxes surrounding the blue circle). Our list does not include individual forms of political participation because that was not our focus, but a more comprehensive schematic should consider these approaches as well. While this paper focuses on cross-cutting lessons learned in areas with moderate and high residential segregation, we emphasize research and intervention approaches that consider a neighborhood or jurisdiction's unique sociopolitical history and the racial formation of its Asian American population.

A PUBLIC HEALTH FRAMEWORK INCORPORATING ASIAN AMERICAN POLITICAL EMPOWERMENT  
 BAY AREA REGIONAL HEALTH INEQUITIES INITIATIVE (ADAPTED)

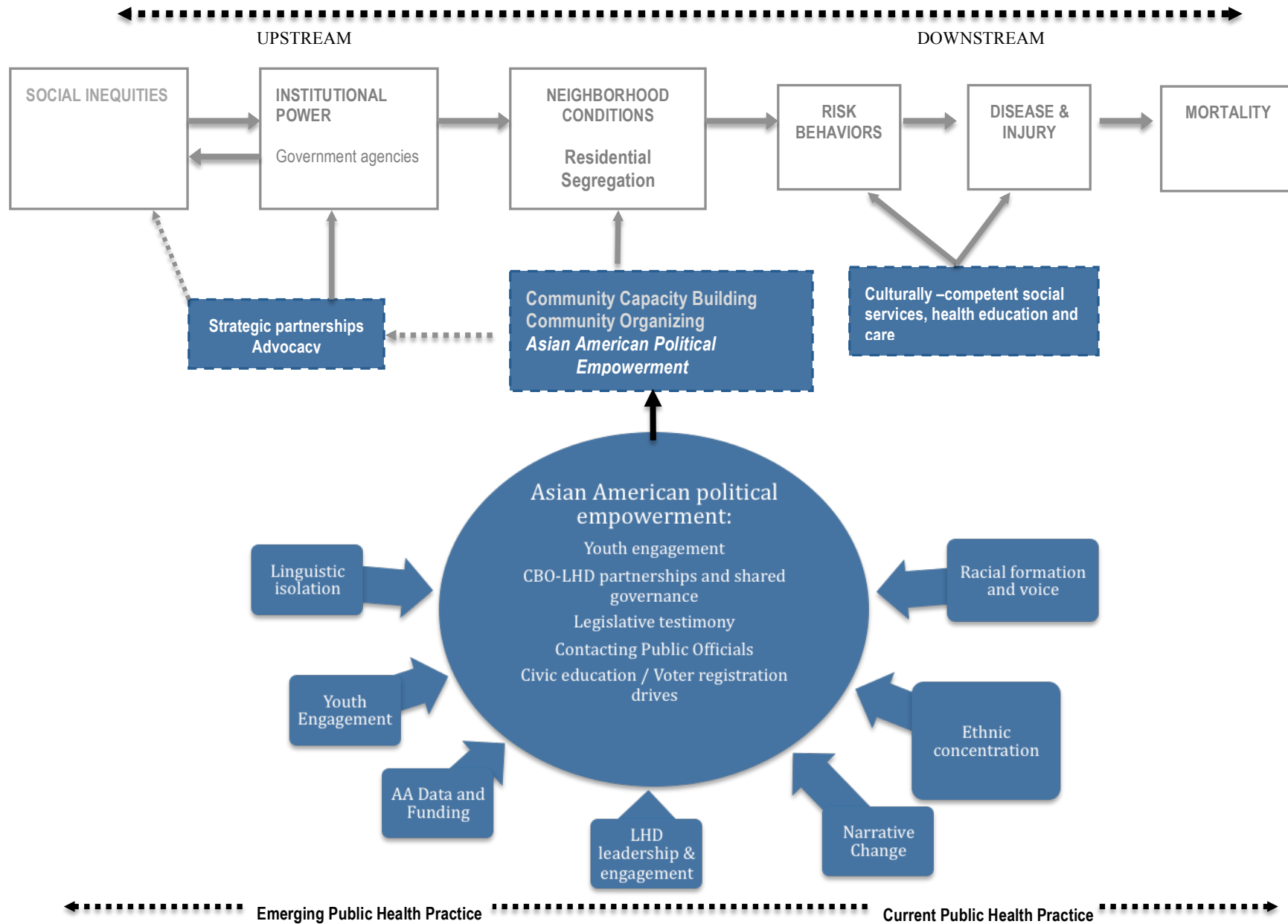


Figure 3. Framework for Public Health and Asian American Political Empowerment (Adapted from BARHII and Wong JW, Ramakrishnan SK, Lee T, Junn J. ,2011)

## **Further Implications for Public Health Practice**

This is a timely inquiry for several reasons. First, Asian Americans are now the fastest growing racial/ethnic group in the country, while also increasingly becoming residentially segregated. Health disparities continue to persist for Asian Americans, yet continue to be an understudied and invisible population due to the challenge of the model minority myth. In addition, Asian Americans are also one of the fastest growing voting demographics. Asian American voter registration increased 51% between 2000 and 2008, a growth rate second only to Latinos (AAJC, 2013). Finally, the Patient Protection and Affordable Care Act has provided an unprecedented focus and investment in public health and prevention recommendations for programmatic and policy interventions aimed at improving population health and eliminating health inequities.

Our study contributes to the segregation and health literature by 1) focusing on Asian Americans, an understudied population; and 2) by exploring potential social interventions for public health practitioners that can improve health and equity. Residential segregation produces and reproduces several social conditions that are disadvantageous to its minority residents (Acevedo-Garcia, 2003), but can also provide social contexts that enhance health, that includes a greater sense of ethnic identity, a buffer from everyday experiences of racial discrimination, more culturally appropriate health services, and more politically engaged residents (Kramer, 2009). This study builds upon this existing literature to suggest a more asset-based and resiliency model to approaching root causes of Asian American health inequities.

## **Strengths and limitations**

Cases were used to explore and compare the social, cultural, and political contexts of Asian American neighborhoods, important elements for planning public health interventions. A multi-site case study methodological approach allows “the empirical investigation of a contemporary phenomenon within its real life context, employing multiple sources of evidence (Minkler paper 2008)”. “Such designs are advantageous in that the evidence gathered is often considered more compelling than when single cases are explored” (Yin, 2014). We recognize that this exploratory study has limitations. Our snow ball sampling method may not reflect a broad or diverse range of opinions and perspectives, and our limited sample size does not provide a full scope of examples in these communities. Thus our framework does not provide an exhaustive list of political empowerment strategies.

One advantage of this process is the opportunity to track important themes worthy of incorporating immediately in future research as well as in community-based organizing efforts. Another strength of a multi-site case study is that these real-world perspectives are more context specific.

Confusion and controversy about how public health professionals can address such root causes of health inequities as residential racial segregation remains. Both researchers

and public health professionals agree that improving social and structural factors important to population health, yet logistical restraints remain. Researchers often feel paralyzed by politically contentious policy implications of the social determinants of health literature, or often suggest that absent systematic policies for reducing socioeconomic inequalities, that only public health and health care interventions provide instruments for addressing health disparities (Acevedo-Garcia et. al., 2008; Syme et. al., 2002). Though most public health professionals and health care providers accept the epidemiological evidence suggesting that improving social and physical environments can improve population health, most professionals focus on narrower, categorical tasks such as educating the public about the risks of tobacco exposure, inspecting restaurants, or screening people for sexually transmitted diseases. Public health departments are often administratively, ethically, or politically limited as to their involvement in political or legislative activities (Beitcsch 2006). Furthermore, local public health department officials “remain stymied by bureaucratic structures, statutory mandates, and constraints on the seemingly traditional boundaries of the discipline” (Hofrichter, 2006). These dynamics remain the reality in many local health departments. We have tried to present some approaches that may be feasible within this context. This exploratory study also attempts to inspire health practitioners to engage with community-based organizations working with segregated Asian Americans to develop new strategies that draw upon community strengths in order to improve their collective political participation and civic engagement as a health promotion endeavor.

## WORKS CITED

1. Acevedo-Garcia, D., Lochner, K. A., Osypuk, T. L., & Subramanian, S. V. (2003). Future directions in residential segregation and health research: a multilevel approach. *American journal of public health*, 93(2), 215-221.
2. Adler, N. E., & Rehkopf, D. H. (2008). US disparities in health: descriptions, causes, and mechanisms. *Annu. Rev. Public Health*, 29, 235-252.
3. Aoki AL, and Nakanishi DT. 2001. "Symposium: Asian Americans and the New Minority Politics." *PS: Political Science & Politics*; 605-44.
4. Asian American Center for Advancing Justice (2013). A Community of Contrasts. Asian Americans, Native Hawaiians and Pacific Islanders in California. Accessible at: [www.advancingjustice.org](http://www.advancingjustice.org).
5. Batista LC, and Cruz-Ledón AM. 2008. The Relationship between Civic Engagement and Health among Older Adults. *COERC 2008*, 8.
6. Beitsch, L. M., Brooks, R. G., Grigg, M., & Menachemi, N. (2006). Structure and functions of state public health agencies. *American Journal of Public Health*, 96(1), 167.
7. Bell, J. F., Zimmerman, F. J., Almgren, G. R., Mayer, J. D., & Huebner, C. E. (2006). Birth outcomes among urban African-American women: a multilevel analysis of the role of racial residential segregation. *Social science & medicine*, 63(12), 3030-3045.
8. Bureau of Labor Statistics. 2013. "Table A-2. Employment status of the civilian population by race, sex, and age". Accessible at <http://www.bls.gov/news.release/empsit.t02.htm>.
9. California Endowment. 2014. Prepared by FSG. *Sons & Brothers Building Healthy Communities Case Study*. Accessed on 9/22/14 at: [www.calendow.org/uploadedFiles/Learning/Strategic%20Review\\_Sons%20-%20Brothers%20Case%20Study\\_January%202014.pdf](http://www.calendow.org/uploadedFiles/Learning/Strategic%20Review_Sons%20-%20Brothers%20Case%20Study_January%202014.pdf)
10. California Health Interview Survey. CHIS 2011-12 Adult Public Use File. Los Angeles, CA: UCLA Center for Health Policy Research.
11. Carreon, D. 2013. Racial and Ethnic Residential Segregation and Health Care Access (Doctoral Dissertation). University of California, Irvine. Available from: ProQuest Dissertations and Theses database. (UMI No. 3597426).
12. Cho, W. K. T., Gimpel, J. G., & Dyck, J. J. (2006). Residential concentration, political socialization, and voter turnout. *Journal of Politics*, 68(1), 156-167.
13. Changelab (2012). Left or Right of the Color Line? Asian Americans and the Racial Justice Movement. Accessible at [www.changelabinfo.com](http://www.changelabinfo.com).
14. Charles, C. Z. (2003). The dynamics of racial residential segregation. *Annual review of sociology*, 167-207.
15. Ekman, J., & Amnå, E. (2012). Political participation and civic engagement: Towards a new typology. *Human affairs*, 22(3), 283-300.
16. Gallup. 2007. *Race Relations*. Accessible at <http://www.gallup.com/poll/1687/race-relations.aspx>. Accessed on March 22, 2013.
17. Gee, G. 2002. "A multilevel analysis of the relationship between institutional and individual racial discrimination and health status". *American Journal of Public Health*; 92: 615-623.

18. Healthy People 2020, 2011. "Goals and Objectives: Social Determinants of Health". Department of Health and Human Services, accessed on December 8, 2011 at <http://healthypeople.gov/2020/topicsobjectives2020/overview.aspx?topicid=39>
19. Hofrichter, R. (Ed.). (2006). *Tackling health inequities through public health practice: A handbook for action*. National Association of County & City Health Officials, the Igham County Health Department.
20. Hutchinson SL, and Wexler B. 2007. Is "raging" good for health?: Older women's participation in the Raging Grannies. *Health Care for Women International*, 28(1), 88-118.
21. Iceland, J., Goyette, K. A., Nelson, K. A., & Chan, C. (2010). Racial and ethnic residential segregation and household structure: A research note. *Social Science Research*, 39(1), 39-47.
22. Kawachi, I., Subramanian, S. V., & Kim, D. (2008). *Social capital and health* (pp. 1-26). Springer New York.
23. Kawulich, B. B. (2005, May). Participant observation as a data collection method. In *Forum Qualitative Sozialforschung/Forum: Qualitative Social Research* (Vol. 6, No. 2).
24. Kim, D., & Kawachi, I. (2006). A multilevel analysis of key forms of community-and individual-level social capital as predictors of self-rated health in the United States. *Journal of Urban Health*, 83(5), 813-826.
25. Koh, H. K., Piotrowski, J. J., Kumanyika, S., & Fielding, J. E. (2011). Healthy People a 2020 vision for the social determinants approach. *Health Education & Behavior*, 38(6), 551-557.
- Kramer, M. R., & Hogue, C. R. (2009). Is segregation bad for your health?. *Epidemiologic Reviews*, 31(1), 178-194.
26. Kramer, M. R., & Hogue, C. R. (2009). Is segregation bad for your health?. *Epidemiologic reviews*, 31(1), 178-194.
27. Krieger, N. (2001). Theories for social epidemiology in the 21st century: an ecosocial perspective. *International Journal of Epidemiology*, 30(4), 668-677.
28. Lah K . November 7, 2012. "[2012 election ushers in historic wins for Asian-American candidates.](http://inamerica.blogs.cnn.com/2012/11/07/2012-election-ushers-in-historic-wins-for-asian-american-candidates-2/)" <http://inamerica.blogs.cnn.com/2012/11/07/2012-election-ushers-in-historic-wins-for-asian-american-candidates-2/> accessed March 21, 2013.
29. Lauderdale, D.S. & Kestenbaum, B. (2000). Asian American ethnic identification by surname. *Population Research and Policy Review*, 19; 283-300.
30. LaVeist T. 1993. Segregation, poverty, and empowerment: health consequences for African Americans. *Milbank Quarterly*; 71 (1):41-64.
31. Lien, P. T., Conway, M. M., Lee, T., & Wong, J. (2001). The pilot Asian American political survey: Summary report. *The National Asian Pacific American Political Almanac*, 2, 80-95.
32. Logan, J. (2011). Separate and Unequal: The Neighborhood Gap for Blacks, Hispanics, and Asians in Metropolitan America. Research Brief, US2010 Project, 2013.
33. Logan, J. R., & Zhang, W. (2013). Separate but Equal: Asian Nationalities in the US. Research Brief, US2010 Project, 2013. Downloaded May 9, 2013 at: <http://www.s4.brown.edu/us2010/Data/Reports/report>
34. Marsh, A., & Kaase, M. (1979). Measuring political action. *Political action: Mass participation in five western democracies*, 57-97.

35. Massey, D. S., & Denton, N. A. (1988). The dimensions of residential segregation. *Social forces*, 67(2), 281-315.
36. Milbrath, L. W. & Goel M.L. (1977). Political participation. How and why do people get involved in politics.
37. Massey, D. S., & Denton, N. A. (1993). *American apartheid: Segregation and the making of the underclass*. Harvard University Press.
38. Minkler.... 2008
39. Minkler, M., Salvatore, A. L., Chang, C., Gaydos, M., Liu, S. S., Lee, P. T., ... & Krause, N. (2014). Wage Theft as a Neglected Public Health Problem: An Overview and Case Study From San Francisco's Chinatown District. *American journal of public health*, 104(6), 1010-1020.
40. Morello-Frosch R. Lopez R. 2006. "The riskscape and the color line: Examining the role of segregation in the environmental health disparities." *Environmental Research*; 102:181-196.
41. National Coalition for Asian Pacific American Community Development. (2013). *Spotlight on Asian American and Pacific Islander Poverty. A Demographic Profile*. Washington D.C.: Josh Ishimatsu. Accessible at: [www.nationalcapacd.org](http://www.nationalcapacd.org)
42. Nazari, Seyed Saeed Hashemi, Mahmood Mahmoodi, and Kourosh Holakouie Naieni. "Residential segregation of socioeconomic variables and health indices in Iran." *International journal of preventive medicine* 4.7 (2013): 767.
43. NPR National Public Radio. 2008 "A New, 'Post-Racial' Political Era in America." Accessible at <http://www.npr.org/templates/story/story.php?storyId=18489466>. Accessed on March 22, 2013.
44. Nuru-Jeter, A. M., & LaVeist, T. A. (2011). Racial segregation, income inequality, and mortality in US metropolitan areas. *Journal of Urban Health*, 88(2), 270-282.
45. Omi, M. and Winant H. 1994. *Racial Formation in the United States: From the 1960s to the 1990s*. NY: Routledge.
46. Robert Wood Johnson Health Foundation. February 23, 2013. "Health Policy Brief: The Prevention and Public Health Fund," *Health Affairs*. Accessible at: [www.healthaffairs.org](http://www.healthaffairs.org).
47. Robertson A and Minkler M. 1994. New Health Promotion Movement: A Critical Examination. *Health Educ Behav*; 21: 295- 312.
48. Ross S & Agiesta J. October 27, 2012. "Racial Views: Poll Shows Majority Harbor Prejudice Against Blacks." Accessible at: [http://www.huffingtonpost.com/2012/10/27/racial-views-new-polls-sh\\_n\\_2029423.html](http://www.huffingtonpost.com/2012/10/27/racial-views-new-polls-sh_n_2029423.html). Accessed on March 22, 2013.
49. Schensul, S. L. (1999). *Essential ethnographic methods: Observations, interviews, and questionnaires* (Vol. 2). Rowman Altamira.
50. Takaki, R. (1989). *Strangers from a distant shore: A history of Asian Americans*. Boston: Little, Brown and Company.
51. Teorell, J., Torcal, M., & Montero, J. R. (2007). Political participation: Mapping the terrain. *Citizenship and involvement in European democracies: A comparative perspective*, 17, 334-357.
52. UC Berkeley Center for Law Research (2014). *Statewide Database & Election Administration Research Center: Asian Surname Turnout by County, California 2012 election*. Accessible at:

[http://statewidedatabase.org/ftp/pub/data/REPORTS/Election/G12/g12\\_asian\\_surname\\_turnout\\_by\\_county.xls](http://statewidedatabase.org/ftp/pub/data/REPORTS/Election/G12/g12_asian_surname_turnout_by_county.xls)

53. University of Wisconsin Population Health Institute. County Health Rankings 2012. Accessible at [www.countyhealthrankings.org](http://www.countyhealthrankings.org).
54. Verba, S., Nie, N. H., & Kim, J. O. (1978). Participation and Political Equality: A Seven-Nation Study.
55. Walton, E. (2009). Residential segregation and birth weight among racial and ethnic minorities in the United States. *Journal of health and social behavior*, 50(4), 427-442.
56. White, K., & Borrell, L. N. (2011). Racial/ethnic residential segregation: framing the context of health risk and health disparities. *Health & place*, 17(2), 438-448.
57. Williams, D. R., & Collins, C. (2001). Racial residential segregation: a fundamental cause of racial disparities in health. *Public health reports*, 116(5), 404.
58. Williams, D. R., & Mohammed, S. A. (2013). Racism and health I: pathways and scientific evidence. *American behavioral scientist*, 0002764213487340.
59. Williams, D. R., & Mohammed, S. A. (2013a). Racism and health II: A needed research agenda for effective interventions. *American behavioral scientist*, 0002764213487341.
60. Wong, J., Ramakrishnan, S. K., Lee, T., & Junn, J. (2011). *Asian American political participation: Emerging constituents and their political identities*. Russell Sage Foundation.



## CONCLUSION

This dissertation employed a mixed-methods analysis to examine the role of racial residential segregation on Asian American health, informed by scholarship in public health, social epidemiology, political sociology, urban planning, and ethnic studies. In the introduction, I recounted the racial formation of Asian American and the model minority myth, and the role that public health played. In doing so, I intentionally sought to frame this public health study by acknowledging the potential consequences of research, practice, and policy by a discipline that seeks to advance social justice, however, as history reveals, can create and perpetuate detrimental myths and norms via data and practice. Building off this reflection, paper one critically examined the literature on racial residential segregation and Asian American health status, highlighting key findings, theoretical underpinnings, and measurement and methodological strengths and limitations. In using a relational view of geography, I reviewed how the constructs of “place” and “race” are understood, and suggested that applying a relational approach to future research is favorable because it allows for a more nuanced, dynamic, and context-specific approach to population health research and actions.

Paper two examined the effects of racial residential segregation and psychological distress in a representative sample of Asian Americans in California, and tested the moderating effects of social capital and political empowerment. I found significant associations between residential segregation and psychological distress across different levels of individual-level social capital and collective political empowerment. However, in high segregated areas, low social capital was beneficial to psychological distress. I discussed potential explanations as well as implications for future research. A better understanding the social context and type of social capital can lead to a more nuanced understanding of the relationship between residential segregation, social capital, and political empowerment in affecting the health status of Asian Americans.

Paper three explored health promotion strategies for public health departments aimed at addressing the factors associated with racial residential segregation and the health among Asian Americans. I used in-depth interviews in San Francisco, Fresno, and Orange Counties to explore whether improving political empowerment can be utilized by public health agencies as a strategy among Asian American communities, especially in segregated neighborhoods, to improve health. Findings suggested several opportunities to improve the political empowerment of Asian Americans as a health promotion strategy. We recognized that local public health department officials operate within several bureaucratic and political constraints that may seemingly limit practice to extend traditional boundaries of the discipline. These dynamics remain the reality in many local health departments. We have tried to present approaches that are feasible within this context. This dissertation seeks to inspire health practitioners to engage with community residents and community-based organization leaders, who graciously took time to share their expert opinions for this study, in order to develop new strategies that draw upon community strengths and improve Asian American collective political participation and civic engagement as a health promotion endeavor.

## APPENDIX

### Appendix-1

#### California MSAs and Asian-White Dissimilarity Index, 2010

MSA	Dx (Asian-White/White-Asian)
NAPA, CA	0.57
SACRAMENTO--ARDEN-ARCADE--ROSEVILLE, CA	0.468
STOCKTON, CA	0.459
LOS ANGELES-LONG BEACH-GLENDALE, CA	0.457
SAN DIEGO-CARLSBAD-SAN MARCOS, CA	0.443
SAN FRANCISCO-SAN MATEO-REDWOOD CITY, CA	0.443
SAN JOSE-SUNNYVALE-SANTA CLARA, CA	0.43
OAKLAND-FREMONT-HAYWARD, CA	0.423
SANTA ANA-ANAHEIM-IRVINE, CA	0.416
BAKERSFIELD-DELANO, CA	0.406
MERCED, CA	0.389
VALLEJO-FAIRFIELD, CA	0.384
RIVERSIDE-SAN BERNARDINO-ONTARIO, CA	0.382
SALINAS, CA	0.372
FRESNO, CA	0.353
MADERA-CHOWCHILLA, CA	0.334
VISALIA-PORTERVILLE, CA	0.332
MODESTO, CA	0.322
CHICO, CA	0.318
YUBA CITY, CA	0.314
OXNARD-THOUSAND OAKS-VENTURA, CA	0.285
SANTA BARBARA-SANTA MARIA-GOLETA, CA	0.285
HANFORD-CORCORAN, CA	0.281
EL CENTRO, CA	0.28
SANTA CRUZ-WATSONVILLE, CA	0.273
REDDING, CA	0.244
SANTA ROSA-PETALUMA, CA	0.241
SAN LUIS OBISPO-PASO ROBLES, CA	0.228
Mean	0.361857143

(U.S. Census, 2010)

## **Appendix-2**

### **Semi-structured Interview Guide Questions**

Q1. Describe the mission and strategic priorities of your organization to address Asian American health and well-being.

Q2. What are the major barriers to improving the health and well-being of Asian Americans in this community?

Q3. Describe any initiatives, partnerships, or programs that are working well?

Q4. Describe how the local public health department can improve health equity for Asian Americans?

Q5. Describe how Asian Americans are participating in the political process? What is being done to improve participation?

Q6. In your opinion, what are the pros and cons of a Pan-Asian approach to improving health?

Q7. Can you provide other community leaders or experts who can speak about the Asian American health in this community?

### Appendix-3

#### Typology of different forms of disengagement, involvement, civic engagement, and political participation (Ekman & Amna, 2012)

	Non-participation		Civic Engagement (latent-political)		Political Participation (manifest)		
	Active forms (antipolitical)	Passive forms (apolitical)	Social involvement (attention)	Civic engagement (action)	Formal political participation	Activism (extra-Parliamentary political participation)	Illegal protests or actions
						Legal/ extra-parliamentary protests or actions	
<b>Individual Forms</b>	<p>Non-voting</p> <p>Actively avoiding reading newspapers or watching TV when it comes to political issues</p> <p>Perceiving politics as disgusting</p> <p>Political disaffection</p>	<p>Non-voting</p> <p>Perceiving politics as uninteresting and unimportant</p> <p>Political passivity</p>	<p>Taking interest in politics and society</p> <p>Perceiving politics as important</p>	<p>Writing to an editor</p> <p>Giving money to charity</p> <p>Discussing politics and societal issues, with friends or on the internet</p> <p>Reading newspapers and watching TV when it comes to political issues</p> <p>Recycling</p>	<p>Voting in elections and referenda</p> <p>Deliberate acts of non-voting or blank voting</p> <p>Contacting political representatives or civil servants</p> <p>Running for or holding public office</p> <p>Donating money to political parties or organizations</p>	<p>Boycotting, boycotting, and political consumption</p> <p>Signing petitions</p> <p>Handing out political leaflets</p>	<p>Civil disobedience</p> <p>Politically motivated attacks on property</p>
<b>Collective Forms</b>	<p>Deliberate non-political lifestyles, e.g., hedonism, consumerism</p> <p>In extreme cases: random acts of non-political violence (riots), reflecting frustration, alienation or social exclusion</p>	<p>"Non-reflected" non-political lifestyles</p>	<p>Belonging to a group with societal focus</p> <p>Identifying with a certain ideology and/or party</p> <p>Life-style related involvement: music, group identity, clothes, etc. (veganism; Skinhead scene)</p>	<p>Volunteering in social work, e.g., to support women's shelter or to help homeless people</p> <p>Charity work or faith-based community work</p> <p>Activity within community based organizations</p>	<p>Being a member of a political party, an organization, or a trade union</p> <p>Activity within a party, an organization, or a trade union (voluntary work or attend meetings)</p>	<p>Involvement in new social movements or forums</p> <p>Demonstrations, participating in strikes, protests and other actions (e.g., street festivals with a distinct political agenda)</p>	<p>Civil disobedience actions</p> <p>Sabotaging or obstructing roads and railways</p> <p>Squatting buildings</p> <p>Participating in violent demonstrations or animal rights action</p> <p>Violence confrontations with political opponents or the police.</p>

