

AHA SCIENTIFIC STATEMENT

# Social Determinants of Cardiovascular Health in Asian Americans: A Scientific Statement From the American Heart Association

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**ABSTRACT:** To achieve cardiovascular health (CVH) equity in the United States, an understanding of the social and structural factors that contribute to differences and disparities in health is necessary. The Asian American population is the fastest-growing racial group in the United States but remains persistently underrepresented in health research. There is heterogeneity in how individual Asian American ethnic groups experience CVH and cardiovascular disease outcomes, with certain ethnic groups experiencing a higher burden of adverse social conditions, disproportionately high burden of suboptimal CVH, or excess adverse cardiovascular disease outcomes. In this scientific statement, upstream structural and social determinants that influence CVH in the Asian American population are highlighted, with particular emphasis on the role of social determinants of health across disaggregated Asian American ethnic groups. Key social determinants that operate in Asian American communities include socioeconomic position, immigration and nativity, social and physical environments, food and nutrition access, and health system-level factors. The role of underlying structural factors such as health, social, and economic policies and structural racism is also discussed in the context of CVH in Asian Americans. To improve individual-, community-, and population-level CVH and to reduce CVH disparities in Asian American ethnic subgroups, multilevel interventions that address adverse structural and social determinants are critical to achieve CVH equity for the Asian American population. Critical research gaps for the Asian American population are given, along with recommendations for strategic approaches to investigate social determinants of health and intervene to reduce health disparities in these communities.

**Key Words:** AHA Scientific Statements ■ Asian ■ health equity ■ health inequities ■ heart disease risk factors ■ social determinants of health

The Asian American population is a diverse group that experiences considerable heterogeneity in cardiovascular health (CVH) and cardiovascular disease (CVD). Despite being the fastest-growing racial group in the United States, with a population projected to reach 46.2 million by 2060,<sup>1,2</sup> Asian Americans remain underrepresented in health-related research. Because of the small numbers of Asian Americans recruited in research studies, participants are frequently categorized in an “Other” racial group, aggregated into a single “Asian” category or grouped with Native Hawaiian and Pacific Islander communities, or excluded from analyses citing small sample size, which results in the masking of

clinically relevant differences in health among Asian ethnic groups. Asian American ethnic groups should be individually identified and categorized separately from Native Hawaiian and Pacific Islander groups because each ethnic group represents a unique population with distinct social, cultural, and health characteristics. Furthermore, self-identification as Asian American varies among individual ethnic subgroups, with consequent individual-level variation in how study participants may respond to demographics questionnaires querying self-identified race or ethnicity, which may also result in underrepresentation of Asian ethnic groups in health data.<sup>3</sup> Research conducted exclusively in English may also result in

underrepresentation of Asian ethnic groups with lower English proficiency. Funding for research in the Asian American population made up <0.17% of the National Institutes of Health budget between 1992 and 2018.<sup>4</sup>

A 2023 scientific statement from the American Heart Association (AHA) summarized the epidemiology of diabetes and atherosclerotic CVD among Asian Americans and highlighted the heterogeneity in health and disease experienced among Asian ethnic groups in the United States.<sup>5</sup> The 6 largest Asian origin ethnic groups in the United States are Chinese, Indian, Filipino, Vietnamese, Korean, and Japanese Americans, which in total made up 85% of the Asian American population in 2019 and are the Asian American groups for which most data are available.<sup>1</sup> Of these ethnic groups, surveillance of national mortality data revealed that in 2017 Indian American adults had the highest ischemic heart disease mortality rates, and Vietnamese American adults had the highest cerebrovascular disease mortality rates.<sup>6</sup> Data from NHANES (National Health and Nutrition Examination Surveys) between 2011 and 2016 demonstrated that South Asian adults had the highest prevalence of diabetes among Asian American adults.<sup>7</sup> Several regional and national analyses demonstrate similar heterogeneity in the epidemiology of CVH factors across Asian ethnic groups.<sup>8–10</sup> Existing data for differences in overall CVH across individual Asian ethnic groups remain limited. In NHANES 2011 to 2016, ideal CVH was present in 8.7% of non-Hispanic Asian Americans in aggregate<sup>11</sup>; however, to date, disaggregated Asian ethnic identity is not publicly available in NHANES data, and NHANES participants largely speak English only.<sup>12</sup> It is notable that other Asian origin groups (eg, Pakistani, Thai, or Cambodian) are less often identified, limiting the understanding of health status in these populations.

In 2010, an AHA science advisory called for accurately assessing and addressing CVD health disparities in Asian American ethnic groups.<sup>13</sup> In the decade since, evidence focused on addressing CVH and CVD disparities among Asian Americans has grown but remains insufficient to optimally and equitably promote CVH among the diverse Asian American population. Social determinants of health (SDOH) are defined by the World Health Organization as “conditions in which people are born, grow, work, live, and age, and the wider set of forces and systems shaping the conditions of daily life”<sup>14</sup> that can result in adverse social risk factors.<sup>15</sup> SDOH are increasingly recognized as key upstream determinants of CVH and subsequent CVD outcomes and consequently are important targets for intervention for disease prevention.<sup>16</sup> The relationships between SDOH and adverse social risk factors, upstream structural determinants of health inequities, and downstream health status in the Asian American population are displayed in Figure 1, adapted from the World Health Organization's conceptual model for the role of SDOH in health status and outcomes.<sup>17</sup>

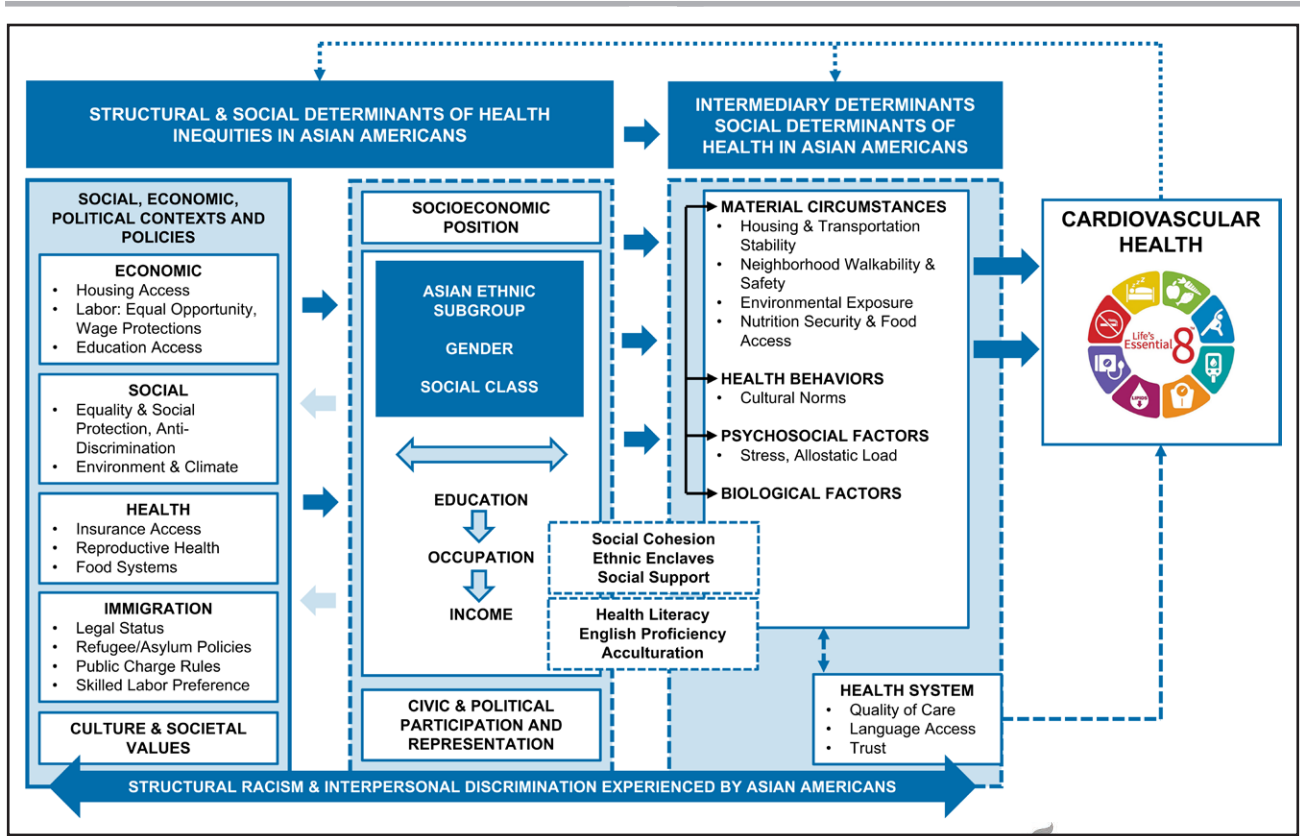
Differences in CVH and CVD outcomes among individual Asian ethnic groups are likely related to both the influence of and differences in SDOH and the presence of social risk factors between groups.<sup>15,18</sup>

In alignment with the AHA's 2024 Impact Goal that “every person deserves the opportunity for a full, healthy life,”<sup>19</sup> this AHA scientific statement highlights the evidence for the role of SDOH in CVH among Asian American adults and identifies gaps and future directions for research to advance CVH equity for the Asian American population. In this narrative, CVH may refer to an overall burden of cardiovascular and metabolic risk factors (eg, by the AHA's Life's Simple 7 or Life's Essential 8 CVH constructs)<sup>20,21</sup> or individual cardiometabolic risk factors. Evidence is presented for the role of SDOH in CVH among Asian Americans within several domains following the SDOH conceptual model (Figure 1), including structural determinants such as the role of racism; immigration-related factors; acculturation; socioeconomic position (SEP); environmental factors and social contexts; nutrition security and food access; language and health literacy; and health system–related factors.

## STRUCTURAL DETERMINANTS, INCLUDING HISTORICAL EXPERIENCES OF RACISM



Social determinants of CVH in Asian Americans must be understood within the context of historical and present-day racism against Asian Americans. Racism is “the totality of the social structures, negative climate, pejorative stereotypes, and microlevel insults and assaults that serve to reinforce the power structure that maintains White supremacy.”<sup>22</sup> Structural racism results in unequal allocation and experience of adverse social determinants and conditions. Immigrants from Asia to the United States in the early 1800s endured blatant and violent racism, including murder, threats, wage theft, and other forms of abuse.<sup>23</sup> Chinese Americans, the largest Asian immigrant group at the time, were often blamed for taking jobs away from White Americans and for introducing disease and social vice. The result of this stigmatization was a series of laws, including the 1882 Chinese Exclusion Act, that restricted immigration and citizenship solely on the basis of national origin. Other laws singling out immigrants from other Asian countries soon followed. A prominent example of how anti-Asian prejudice became institutionalized in policy is Executive Order 9066, which led to the unjust, forced incarceration of Japanese Americans during World War II in 1942. As a result, Japanese Americans were exposed to subpar housing, lack of clean water and healthy foods, and inadequate health care, which led to excess illness and mortality.<sup>24</sup> US immigration law changed in the 1960s to lift nationality-based restrictions, allowing more immigrants from Asia to arrive but



**Figure 1. Structural and SDOH in Asian Americans.**

Structural and social determinants of health (SDOH) inequities and intermediary SDOH related to cardiovascular health (CVH) among Asian populations in the United States are identified, aligned with the World Health Organization's (WHO's) conceptual model of SDOH. Examples are provided in each domain. Research gaps remain in our understanding of how these factors influence each of the components of Life's Essential 8 CVH and how the roles of these factors differ across diverse Asian American ethnic groups. Several factors listed (eg, reproductive health policy, transportation access stability) have less evidence for their role specifically in Asian American ethnic groups and are key areas for future research (Table). The factors identified are not an exhaustive listing of important structural or social determinants of CVH for Asian American populations. Adapted from Solar and Irwin.<sup>17</sup> The WHO is not responsible for the content or accuracy of this adaptation. Life's Essential 8 trademarked logo is copyright American Heart Association, Inc.

not before the preceding xenophobic policies limited the Asian American population size and these communities' access to health resources.

Anti-immigrant stigma may affect Asian American CVH through multiple mechanisms: (1) advancing policies that limit access to socioeconomic and health resources; (2) increasing the real and perceived threat of deportation and detention for Asian immigrants, refugees, and their families; and (3) exacerbating experiences of discrimination and stress.<sup>25</sup> A recent example includes anti-Chinese sentiment during the COVID-19 pandemic.<sup>26–28</sup> The result was a substantial rise in hate crimes against Asian Americans, which not only directly harmed victims of violence but also affected the Asian American community more broadly because of hypervigilance against attacks and fear of conducting daily activities, including attending doctors' appointments, exercising outdoors, or shopping for groceries.<sup>29–32</sup> Real and perceived discriminatory threats in the contemporary sociopolitical environment may influence CVH by leading to increased stress, poor sleep habits, decreased participation in preventive

health care screenings, and other maladaptive health behaviors.<sup>33–35</sup>

Racism against Asian Americans operates at the structural level through social and immigration policy, societal attitudes, colonization, political upheaval, and war.<sup>36,37</sup> At the interpersonal level, it operates through experiences of hate crimes, discriminatory experiences, and racial microaggressions.<sup>38</sup> At the intrapersonal level, Asian Americans may experience vicarious racism, internalized racialization, and intergenerational trauma. A national study of Asian Americans found a positive association between self-reported experiences of discrimination and cardiovascular conditions for Chinese individuals and Vietnamese individuals.<sup>39</sup> The COVID-19 pandemic fueled more discrimination against Asian Americans, with 24% (95% CI, 21.6%–25.6%) reporting discrimination during the first year of the pandemic.<sup>40</sup> Addressing CVD risk among Asian Americans entails recognizing and addressing how racism in its various forms affects CVH.

Asian American health is further shaped by international policies that affect CVH before living in the

**Table. Priority Research Questions Investigating Social Determinants of CVH in Asian Populations in the United States**

SDOH domain	Priority research questions for individual Asian ethnic groups
Structural determinants	How do economic, social, health, and immigration policies influence social conditions in individual Asian ethnic groups? How do these policies support or worsen CVH in Asian Americans?
Racism and discrimination	How is the experience of racism and discrimination best measured in individual Asian ethnic groups in the United States? How do racism and discrimination result in adverse social conditions such as limited access to care or economic exploitation and ultimately suboptimal CVH in individual Asian ethnic groups?
Immigration	How do immigration-related factors such as legal status, LEP, place of birth, and immigration generation influence CVH in Asian ethnic groups? How does the CVH of Asian immigrant populations differ from the CVH of second-generation Asian Americans, and what factors contribute to those differences? How does colonialism influence the CVH of diverse Asian populations in the United States and abroad?
Socioeconomic position	How do socioeconomic factors such as education, employment and occupation, and income act to support or worsen CVH in individual Asian ethnic groups? In Asian ethnic groups with relatively higher socioeconomic position, what social determinants more strongly influence CVH?
Acculturation	What acculturation-related behaviors most influence CVH in individual Asian groups?
Neighborhood, physical, social environments	How and why is housing insecurity experienced among individual Asian ethnic groups, and how does the experience of housing insecurity influence CVH in individual Asian ethnic groups? To what degree and how do transportation access and transit insecurity influence CVH behaviors and health care use among individual Asian ethnic groups?
Nutrition security, food access	What interventions best support nutrition security in individual Asian ethnic groups, accounting for differences in dietary patterns related to cultural norms across groups?
Language, health literacy	How does LEP result in suboptimal CVH in individual Asian ethnic groups? Among Asian American populations with LEP, what are the most important interventions that support optimal quality of care?
Health care access, use, and quality	What are the underlying reasons why patients in Asian ethnic groups experience differences in quality of cardiovascular care compared with other racial and ethnic populations? What quality improvement interventions are most effective in supporting optimal clinical outcomes for individual Asian ethnic groups?

CVH indicates cardiovascular health; LEP, limited English proficiency; and SDOH, social determinant of health.

United States. Globalization and histories of colonization in many Asian countries resulted in greater availability and consumption of processed foods and fast foods and more sedentary lifestyles.<sup>41,42</sup> These patterns have led to higher rates of obesity and other suboptimal CVH factors in Asian countries before immigration.<sup>43</sup> Research finds that “preacculturation,” including actions such as taking English classes and saving money in preparation to migrate, was associated with higher adiposity among Filipino migrants to the United States compared with those who did not take such actions.<sup>44</sup> This association between premigration preparation and obesity risk was stronger among migrants compared with nonmigrants still residing in the Philippines. Rising cardiovascular risk in Asian countries, especially among those who wish to migrate to the United States, suggests that even recent immigrants to the United States may be at increased risk for CVD.

### IMMIGRATION-RELATED FACTORS

The social stratification of Asian ethnic groups in the United States is rooted in colonialism, structural racism, and immigration policies. Historical and contemporary immigration policies have contributed to the racialization of Asian Americans and reinforced stereotypes of Asian

individuals as perpetual foreigners and model minorities. For example, the 1965 Immigration Act, which allowed skilled labor to migrate preferentially to the United States, fueled the “model minority myth” of Asian Americans as a successful, healthy, and well-resourced minoritized group. These migration patterns and policies were influenced by colonialism; before 1965, Britain and the United States had already established schools that taught in English in India and the Philippines, and the United States established nursing schools in the Philippines, which resulted in large waves of health care workers migrating from these countries to fill health care labor shortages.<sup>45,46</sup> Immigration policy, citizenship status, and legal documentation are widely recognized as important SDOH that contribute to health outcomes through 3 main pathways: (1) restricting access to material and health resources and civic and political participation, (2) immigration enforcement and threats of detention and deportation, and (3) economic exploitation.<sup>47</sup>

The most common pathways for people from Asian countries to receive legal permanent resident status include being a relative of a US citizen, being sponsored by an employer, and having refugee or asylee status. There has been a 6-fold increase in the population of Asian individuals without legal documentation (hereafter referred to as unauthorized) or without citizenship



(noncitizens) in the United States since 1990.<sup>48</sup> There is very limited research to understand the CVH of Asian individuals who are unauthorized or noncitizens.<sup>49</sup> Approximately 39% of Asian individuals in the United States are noncitizens. Differences in histories and reasons for migration and resettlement may also contribute to suboptimal CVH.<sup>50</sup> Groups such as Bhutanese, Burmese, Cambodians, Hmong, Laotians, and Vietnamese have frequently arrived in the United States as refugees, with greater likelihood of being exposed to war, violence, hunger, and trauma, which can worsen CVH through mediators such as greater stress and allostatic load.<sup>51</sup> Such evidence highlights the importance of rejecting the model minority myth, which ultimately perpetuates underrepresentation of Asian Americans in health disparities research,<sup>52</sup> in favor of research inclusion and targeted interventions among individual ethnic groups that might have higher cardiovascular risk resulting from experiences of trauma.

Policies that criminalize immigrants by legal status or restrict immigrants' access to public benefits must be placed in the context of structural racism and discrimination toward Asian immigrants, Black immigrants, Latino/a/x immigrants, and Middle Eastern and North African immigrants.<sup>53</sup> There is a paucity of research on the effects of immigration legal status on the CVH of Asian Americans. One study that evaluated aggregated Asian groups in the Survey of Income and Program Participation found that noncitizen and unauthorized Asian individuals generally had similar health care access and self-rated physical health compared with Asian individuals who were US-born or naturalized citizens.<sup>54</sup> In qualitative studies, unauthorized Asian immigrants have reported delaying or avoiding the use of health care out of fear of being deported or detained and because of cost barriers.<sup>55</sup> In a study of New York City's Chinese community, Chinese immigrants without legal status were 1.5 times less likely to seek medical care for themselves or a family member when ill compared with documented Chinese immigrants but reported no difference in overall health status.<sup>56</sup> Such mixed-methods studies across diverse Asian American ethnic groups are an important future research direction to provide a more holistic understanding of how Asian immigrants' legal documentation and citizenship status may shape CVH.

Immigration policies can be one mechanism by which specific communities are excluded from access to health services in the United States, which may result in suboptimal health outcomes. One factor that limits adequate understanding of the relationship between immigration status and CVH is that state and federal immigration policies often systematically exclude noncitizen and unauthorized individuals from the health care system.<sup>57</sup> Asian individuals without documented legal status often lack employer-based private insurance, and both noncitizen and unauthorized individuals have limited access to federal and state health insurance programs, which could

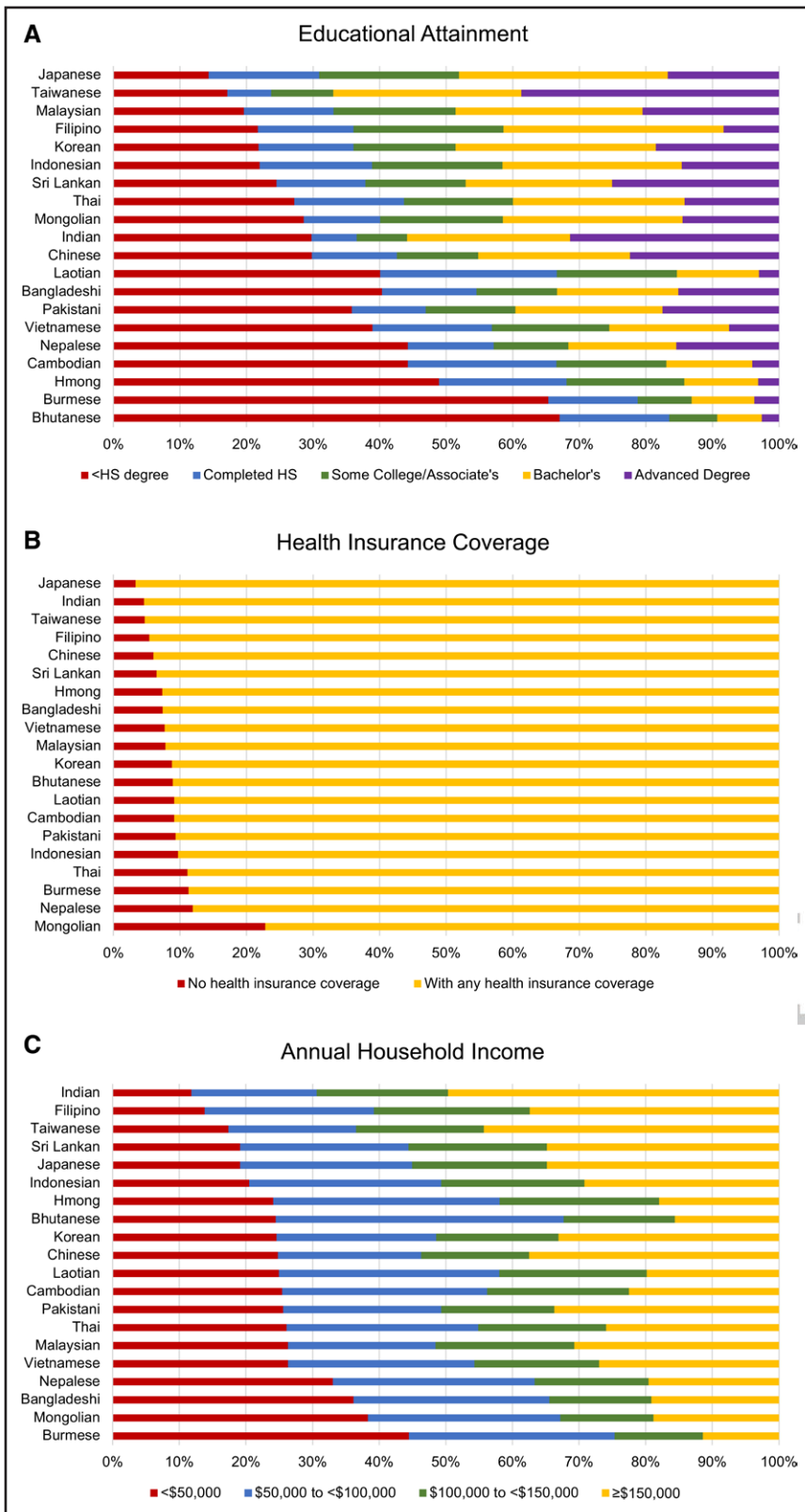
exacerbate disparities.<sup>58</sup> Lack of health insurance and concerns about immigration status can deter individuals from seeking preventive care and limit access and adherence to medications for cardiovascular risk factors.<sup>59</sup> Critical knowledge gaps persist about how immigration status, immigration policies, and the immigration process contribute to CVH and CVD risk and disparities among diverse Asian groups.

## SOCIOECONOMIC POSITION

SEP generally refers to the socially derived economic factors that dictate what positions people or groups hold within a society's stratified structure.<sup>60</sup> Higher SEP is frequently associated with better CVH, and the association of SEP and CVH is complex because SEP is frequently bidirectionally related to other health-related social needs and other SDOH such as immigration status, occupation, and English proficiency (Figure 1). SEP determines an individual's access to resources and health care, determines their experience of physical and social environments, and maintains an association with disease even when intervening mechanisms change.<sup>61</sup> Usually measured at the individual level, favorable SEP provides greater access to and control of economic, political, social, or cultural resources. The pattern of unequal distribution of resources in the US population is present across individual Asian American ethnic groups (Figure 2), with the wide range of SEP measures as a salient contributor to heterogeneity in CVH across groups. In 2019, the median annual household income ranged from approximately \$44 000 per year for Burmese Americans to \$119 000 per year for Indian Americans (compared with \$85 800 for all Asian individuals in aggregate). The percent living in poverty ranged from 6% among Indian Americans to 25% among Mongolian Americans (10% for all Asian individuals in aggregate).<sup>1</sup> SEP is most often measured through education, employment factors, and income.

### Educational Attainment

Education is a key component of SEP that influences health through multiple mechanisms, including facilitating access to higher-paying jobs that include relatively more affordable health insurance options and engagement in CVH-protective behaviors such as reducing the likelihood of smoking.<sup>63</sup> Asian American ethnic groups have considerable differences in educational attainment related in part to differences in migration histories and linguistic, social, and cultural barriers to academic achievement (Figure 2), ranging from Bhutanese individuals with the highest proportion (67%) of less than high school completion to Taiwanese individuals with the highest proportion (39%) with an advanced degree. In a study of 1634 Asian American adults in the 2011 to



**Figure 2. Key socioeconomic measures in Asian ethnic groups in the United States, American Community Survey, 2017 to 2021.**

Distribution of (A) educational attainment, (B) health insurance coverage, and (C) annual household income in Asian American ethnic groups: Data are from the American Community Survey, 2017 to 2021, available from IPUMS USA.<sup>62</sup> HS indicates high school.

2016 NHANES conducted among English- or Spanish-speaking adults, US-born Asian Americans were more likely to be college graduates compared with foreign-born Asian Americans.<sup>12,64</sup> Lower educational attainment

(less than high school) was associated with 73% lower odds of having ideal CVH compared with higher educational attainment (at least college) after controlling for age and sex. However, this association was nonsignificant

after adjustment for nativity status (US born versus foreign born). In the MASALA (Mediators of Atherosclerosis in South Asians Living in America) cohort, having less than a bachelor's degree (relative risk ratio, 1.79 [95% CI, 1.04–3.07]) was associated with a higher prevalence of diabetes compared with having a bachelor's degree or higher.<sup>65</sup>

## Employment

Being employed is a powerful socioeconomic determinant of health, and employment status in the United States is frequently related to health insurance coverage, residence in resource-rich neighborhoods, and housing stability.<sup>66</sup> An analysis of data from the 2016 National Asian American Survey, a nationally representative survey of US Asian individuals from 10 ethnic backgrounds (Bangladeshi, Cambodian, Chinese, Filipino, Hmong, Indian, Japanese, Korean, Pakistani, and Vietnamese), showed that employment was associated with lower odds of poor self-rated health (odds ratio [OR], 0.27;  $P < 0.001$ ) among Asian ethnic groups and White individuals.<sup>67</sup> However, race modified this association, with a stronger protective effect of employment and self-rated health for White adults (OR, 2.94;  $P < 0.05$ ) than among Asian adults.<sup>67</sup> This finding is consistent with studies showing that other racial and ethnic groups receive diminished health benefits from employment compared with White adults. Potential explanations relevant to Asian Americans include the experience of unequal treatment and discrimination in workplaces and social interactions and employment in low-wage occupations with fewer benefits and employee protections such as in the service and food industry.<sup>68</sup> For example, immigrant populations, including Asian Americans, are particularly susceptible to wage theft, which influences overall SEP and may consequently result in adverse health.<sup>69</sup>

## Income

Income is a primary component of SEP that may influence health by enabling spending on services and items that promote health such as food, housing, and education. In NHANES data from 2011 to 2016, US-born Asian Americans were more likely to earn  $> \$75\,000$  per year compared with foreign-born Asian Americans.<sup>64</sup> Although the Asian American population overall has a relatively high income compared with other groups, there is heterogeneity across individual ethnic groups, and income inequality is rising most rapidly among the Asian population. In 2016, Asian individuals in the top 10% of the income distribution earned 10.7 times as much as those in the bottom 10%, adjusted for household size.<sup>70</sup> In the MASALA study, the CVH score (defined by AHA's Life's Essential 8; range, 0 [worse CVH] to 100 [better CVH]) was higher in South Asian individuals with

higher annual family income (mean score, 70 [women] and 63 [men] among those with income  $> \$75\,000$  per year versus 62 [women] and 59 [men] among those with income  $< \$75\,000$  per year).<sup>71</sup> In the MASALA cohort, lower family income ( $< \$40\,000$  per year; relative risk ratio, 2.34 [95% CI, 1.33–4.11]) was associated with a higher prevalence of diabetes compared with a higher family income.<sup>65</sup> A comparative study among adults with self-reported hypertension in the 2009 to 2013 New York City Community Health Survey<sup>72</sup> found that both South Asian and Chinese immigrants were more likely to experience poverty (measured by annual combined household income) than non-Hispanic White adults. In MESA (Multi-Ethnic Study of Atherosclerosis), Chinese American men and women were more likely to report a gross annual family income of  $< \$25\,000$  compared with White participants.<sup>73</sup> Annual household income among individual Asian American ethnic groups in the American Community Survey (2017–2021) is displayed in Figure 2. Income may be uniquely related to CVH in Asian Americans for multiple reasons, including that family income may be spread across a larger household size or multigenerational household. Furthermore, the income-health relationship may be attenuated in several Asian American communities that frequently send remittances to family in their home countries (Bangladesh, China, India, Indonesia, Pakistan, the Philippines, and Vietnam are in the top 10 remittance-receiving countries).<sup>74</sup>

## ACCULTURATION

The CVH consequences of migration among Asian Americans are shaped by structural, social, and cultural forces. Much of the available literature focuses on acculturation, the process by which individuals or groups from one culture encounter and adapt to the practices, values, beliefs, and behaviors of a different culture, to evaluate the ways in which cultural adaptation affects CVH among Asian Americans. There is no consensus on the association between acculturation and cardiovascular risk factors among Asian ethnic groups; in fact, acculturative processes likely operate differently among the heterogeneous Asian American population.<sup>75</sup> This heterogeneity reflects differences in the risk factor or behavior being studied, measure of acculturation, country of origin, cultural norms of the Asian ethnic group, socioeconomic status, and sex.<sup>76</sup> A recent AHA statement provided a detailed review of the literature on acculturation and diabetes and cardiovascular risk among Asian Americans.<sup>5</sup> To extend that statement, we focus on the distinct but related concept of acculturation strategies.

Acculturation strategies are the various ways in which individuals or groups cope to adapt and navigate their contextual circumstances in the United States and other receiving countries.<sup>77</sup> These strategies are used to balance the preservation of the original cultural identity

with the adoption of aspects of the new culture. In contrast to unidimensional models of acculturation, which generally equate acculturation to assimilation, the Berry framework hypothesizes 4 acculturation strategies that recognize that identification with one's heritage culture exists on a separate continuum from identification with the host culture.<sup>78,79</sup> These strategies are integration, assimilation, separation, and marginalization. The integration strategy is used when individuals maintain their heritage culture and adopt elements of the host culture; the assimilation strategy is used when immigrants reject their heritage culture and embrace the host culture; the separation strategy is used when individuals maintain their heritage culture and reject the host culture; and the marginalization strategy is used when immigrants reject both the heritage and host cultures. In the MASALA study, South Asian American men and women in the integration and assimilation groups had healthier cardiometabolic profiles than those in the separation group.<sup>80</sup> The integration group had the lowest diabetes (16.4%) and prediabetes (29.7%) rates, along with lower 2-hour glucose and insulin levels. The assimilation group had the lowest obesity rate (26.5%) among the 3 groups. Men and women in the assimilation group consumed fewer calories and exercised more compared with the other groups.

In a study of Chinese American immigrants in New York City, those who adopted integration and separation strategies had higher levels of physical activity and higher red and processed meat consumption, whereas Chinese Americans adopting assimilation and marginalization had lower levels of physical activity and lower red and processed meat and whole grain consumption.<sup>81,82</sup> These findings challenge the common narrative that increased assimilation results in adoption of less healthy diets, decreased physical activity, and higher CVD risk. Few studies have examined acculturation strategies and CVH in other Asian American groups, and it is unclear whether integration and assimilation strategies are associated with better CVD outcomes among diverse Asian American groups.

## NEIGHBORHOOD, PHYSICAL, AND SOCIAL ENVIRONMENTS

Neighborhood environments shape CVH through their built, physical, and social contextual features. The existence of Asian immigrant and ethnic enclaves, or geographically concentrated communities of Asian Americans, renders the neighborhood environment even more salient in this population. There is substantial heterogeneity in the physical and social characteristics of neighborhoods in which Asian Americans live, as well as variation in the magnitude of neighborhood influences on specific health factors across ethnic groups and sex.

## Ethnic Enclaves

Although definitions of ethnic enclaves vary, research in residential segregation commonly applies quantitative measures such as the dissimilarity index (proportion of Asian individuals in a region who would need to move out of that area to achieve an even distribution of non-Hispanic White and Asian populations) and isolation index (degree of interaction between Asian residents in a region relative to interaction between Asian and non-Hispanic White residents).<sup>83</sup> Asian ethnic enclaves are prevalent, with 26% of census tracts in 5 of the most diverse and populous US states (California, Florida, New Jersey, New York, Texas) classified as Asian enclaves.<sup>84</sup> It is hypothesized that living in ethnically homogeneous communities benefits Asian CVH because, especially at the time of arrival, ethnic enclaves can provide immigrants with ready access to resources such as social networks, economic opportunities, community cultural identity, and linguistic support.<sup>85,86</sup> However, the empirical data of such benefits are inconsistent. In a cross-sectional study of Asian Americans in New York City, there was no association between residing in an ethnic enclave and smoking or self-reported hypertension and diabetes status after controlling for individual-level demographic factors.<sup>83</sup> In the MESA study, Chinese Americans residing in an area with higher proportions of foreign-born individuals more often experienced worse neighborhood social and physical activity characteristics (lower safety, fewer recreational facilities, lower social cohesion) but somewhat healthier food environments and lower individual-level consumption of high-fat and processed foods.<sup>86</sup>

In a separate longitudinal analysis of MESA's Chinese participants followed up from 2000 to 2002 to 2010 to 2012, living in a census tract with a lower percentage of Asian residents was associated with faster increases in body mass index over time.<sup>87</sup> A positive association was observed between living in an ethnic enclave and developing gestational diabetes (a risk factor for future CVD) in immigrant South Central Asian women (but not Chinese women).<sup>88</sup> Conversely, recent work from MESA indicated a positive but not statistically significant association between residential segregation, measured as the magnitude of clustering of racial groups in a census tract of residence relative to the racial composition of the county, and incident hypertension among Chinese participants.<sup>89</sup> Residing in an ethnic enclave may also have implications for psychosocial health, a major factor shaping CVH. Asian immigrants may be protected from discrimination in enclaves, whereas US-born Asian individuals may experience more discrimination in these settings.<sup>90</sup> The inconsistency in the relationship of ethnic enclave residence with CVH across individual Asian ethnic groups may be due to the complex interplay among structural and intermediate SDOH within and across ethnic enclaves such as differing experiences of social support (as detailed in a subsequent



section) and food environments that contribute to dietary patterns within these neighborhoods.

## Social Environment

Neighborhood social cohesion, or the level of solidarity and connection with coresidents, has been investigated in multiple Asian American subpopulations. Social cohesion within the neighborhood is often measured by multi-dimensional survey instruments that include measures of perceived support, sense of community, and frequency of interactions.<sup>91</sup> Social cohesion may indirectly affect CVH through psychosocial and behavioral pathways such as perceptions of neighborhood safety, social control over behaviors, and buffering of stressors.<sup>92</sup> National and regional surveys combining US Asian ethnic groups have found no association between neighborhood social cohesion and meeting physical activity guidelines.<sup>93,94</sup> Null associations may reflect a lack of statistical power or heterogeneity of effects across Asian ethnic groups. Separate analyses in the MASALA study suggest that neighborhood social cohesion was associated with meeting activity recommendations among South Asian men but not women,<sup>95</sup> lower prevalence of hypertension in women but not men,<sup>96</sup> and no association with body mass index after adjustment for sociodemographic factors.<sup>97</sup> In older adults, neighborhood social cohesion was associated with more minutes walked per week among Chinese Americans but not among other Asian ethnic groups.<sup>98</sup> Among South Asian women, participation in exercise classes was facilitated by pairing with exercise classes for their children.<sup>99</sup>

Lack of perceived neighborhood safety was inversely associated with physical activity in Filipino Americans but demonstrated no association in other Asian ethnic groups.<sup>100</sup> Social cohesion may also be a factor in preventive health services: Among East, South, and Southeast Asian immigrants to New York City, higher neighborhood social cohesion was found to be associated with uptake of cholesterol screening.<sup>101</sup> An emerging area of research is the size, quality, and behaviors within one's social network, which growing evidence suggests may influence health behaviors for Asian Americans.<sup>102</sup> For example, South Asian men reported higher weekly moderate to vigorous physical activity if they had more network members who exercised, whereas women reported more activity if they were married to a spouse who exercised.<sup>103</sup> For each additional member in their social network, South Asian individuals also had higher relative odds of ideal compared with poor composite CVH.<sup>104</sup>

## Neighborhood Built and Physical Environment

Apart from ethnic enclaves, the neighborhood built and physical environment influences CVH through structuring health-promoting and health-harming exposures. The most widely studied features of the built and physi-

cal environment among Asian Americans include the food environment (see the Nutrition Security and Food Access section) and opportunities for physical activity. In the MASALA cohort, men and women living near a park or playground were >3 times more likely to meet physical activity guidelines compared with those who did not live near these structures.<sup>95</sup> In comparison, neighborhood walkability was not associated with meeting activity guidelines in either sex. In Chinese Americans in MESA, residing in more walkable neighborhoods and neighborhoods with higher density of recreational facilities was associated with slower abdominal weight gain (measured by waist circumference) over 9 years.<sup>105</sup> Data on the effects of neighborhood physical environment features such as air quality on Asian American CVH are limited. One study among older adults followed up in a nationwide Medicare cohort that included >350 000 adults of self-reported Asian racial identification found a positive association between concentrations of NO<sub>2</sub> and atrial fibrillation, congestive heart failure, and stroke, as well as associations of PM<sub>2.5</sub> and O<sub>3</sub> with congestive heart failure and stroke, without significant differences in associations across racial and ethnic groups.<sup>106</sup>

## Intersection of Individual and Neighborhood SDOH



The divergent findings on neighborhood effects should be interpreted considering the socioeconomic diversity of Asian communities. For example, Asian American enclaves tend to be metropolitan and to have lower poverty rates and better primary health care accessibility than nonenclaves.<sup>84</sup> In contrast, within New York City, Asian individuals residing in enclaves had lower household income and lower insurance coverage compared with those not living in an enclave.<sup>83</sup> Similar area-level variation in socioeconomic composition of places with significant Asian American populations has been reported in comparisons within cities (Asian neighborhoods were at lower SEP) compared with between cities (cities with high Asian populations were at relatively better SEP).<sup>107</sup> Certainly, the observed findings of the role of neighborhood-level SDOH can be understood only in relation to individual-level variation in social factors. Given the heterogeneity in both neighborhood environments and individual-level SDOH across Asian ethnic groups, the lack of disaggregated data by ethnic group precludes a thorough investigation of the underlying mechanisms that explain the observed divergent findings.

## NUTRITION SECURITY AND FOOD ACCESS

Limitations in food access are individual- and household-level social factors that influence CVH and are encompassed by a broad range of terms describing a breadth

of access to and use of food.<sup>108</sup> Such conditions include food insecurity, which is limited or uncertain access to adequate amounts of food,<sup>109</sup> and nutrition security, which refers to equitable and stable availability, access, affordability, as well as the use of foods and beverages that promote well-being and prevent and treat disease.<sup>108,110</sup> Research on the role of food and nutrition security variably evaluates these aspects of the food environment. In all communities, food insecurity is associated with adverse CVH. Food insecurity is associated with increased overweight and obesity (OR from a meta-analysis, 1.15 [95% CI, 1.06–1.23]; OR, 1.26 in women [95% CI, 1.05–1.46]),<sup>111</sup> type 2 diabetes (OR from a meta-analysis, 1.27 [95% CI, 1.11–1.42]),<sup>112</sup> and cardiovascular mortality; a 1% increase in food insecurity was associated with a 0.83% increase in cardiovascular mortality in a recent national ecological analysis.<sup>113</sup> Potential mechanisms by which food insecurity may affect CVH include reliance on foods of low nutritional quality, disordered eating patterns (bingeing, fasting) leading to adverse metabolic effects such as insulin resistance and poor weight management, and stress, which may increase allostatic load and unhealthy coping mechanisms.

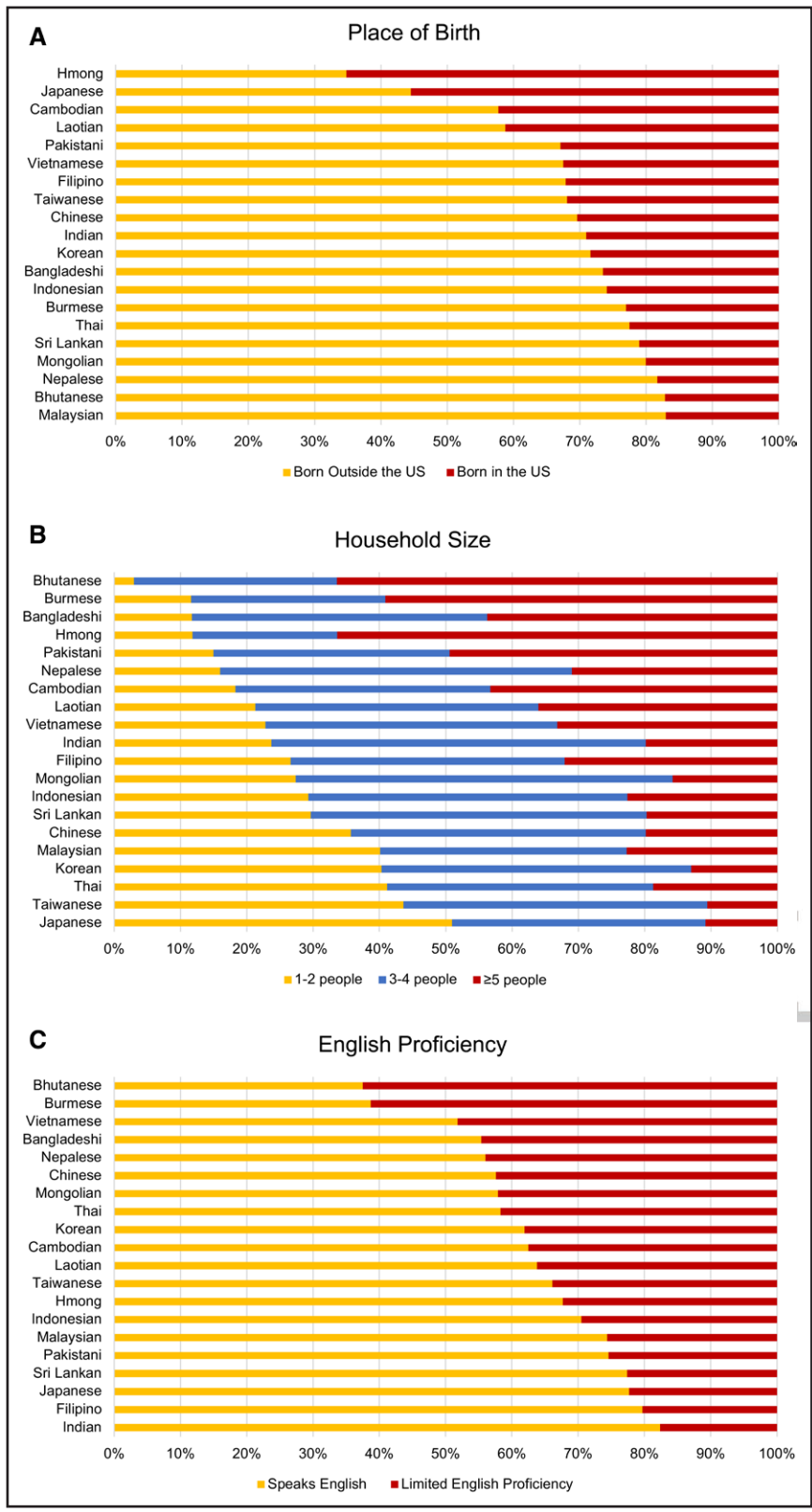
Food insecurity and its consequences in Asian American communities remain to be investigated in detail. Before the COVID-19 pandemic, the rate of food insecurity in the Asian American population was approximately equal to or slightly higher than national estimates of 12%. For instance, estimates of food insecurity ranged from 10% in California Health Interview Survey (CHIS) data to 15% in Los Angeles County Health Survey data, 16% in the Utah Behavioral Risk Factor Surveillance Survey, and 29% in local New York City–based surveys.<sup>114</sup> Estimates vary across Asian ethnic groups and across geographic regions, with higher food insecurity often observed in Filipino communities, Vietnamese communities, and Korean American communities.<sup>114,115</sup> In the wake of the COVID-19 pandemic, estimates for food insecurity have increased roughly 3-fold ( $\approx 35\%$ ) for the Asian American community, with highest need and barriers to accessing food (eg, transportation, fear of discrimination) consistently observed among Filipino communities, Vietnamese communities, Korean communities, and Asian Indian communities.<sup>116–118</sup> Food insecurity is associated with limited English proficiency (LEP); having a high school education only, no insurance, or low income; living in a rural area; and being non-US born.<sup>116–120</sup> Despite persistent food insecurity in the Asian American community, use of public benefits is low, even among those who are US citizens. Supplemental Nutritional Assistance Program underuse by Asian American communities aligns with underuse of other health care resources by Asian Americans. In CHIS data between 2011 and 2020, the highest burden of food insecurity was found among Filipino adults (40%). In these data, Supplemental Nutritional Assistance Program participation ranged from

11% in Korean adults to 20% among Vietnamese adults, and rates were lower among low-income Asian American adults with LEP.<sup>121</sup> Cited barriers to enrolling in public benefit programs have included shame/stigma, pride, difficulty with the application process (language access, complexity), concerns that participation would affect immigration status because of “public charge” rules (ie, policies limiting immigration eligibility for noncitizens who are deemed likely to become dependent on government support), and simply not knowing the programs that exist.<sup>122,123</sup> Recommendations for improving food insecurity in Asian American communities may include incorporating community-partnered approaches, improving language justice and access, providing culturally appropriate food access, and rebuilding inclusion and trust within communities for external supports.<sup>119,124</sup> Direct food provision and policies that provide direct financial support for food and nutrition are known to be particularly effective, but few studies supporting such interventions include Asian American populations.<sup>125</sup>

## LANGUAGE AND HEALTH LITERACY

In 2019,  $\approx 6$  in 10 Asian Americans (57%), including 71% of Asian American adults, were born outside the United States (Figure 3).<sup>1</sup> As of 2019, there were  $>3$  million individuals in the United States  $\geq 5$  years of age who spoke either Chinese languages (ie, Mandarin or Cantonese) or South Asian languages (ie, Hindi, Urdu, Gujarati, Punjabi, Bengali, Telugu, or Tamil), either exclusively or as an additional language. Asian languages with  $>1$  million speakers in the United States include Korean, Tagalog, and Vietnamese.<sup>126</sup> English proficiency varies considerably among Asian-origin groups in the United States. Among those  $\geq 5$  years of age, large majorities of Japanese individuals (85%), Filipino individuals (84%), and Indian individuals (82%) speak English proficiently. In contrast, the Bhutanese community (36%) and Burmese community (38%), both groups with large populations of recently arrived immigrants, have some of the lowest rates of English proficiency. US-born Asian individuals (95%) are much more likely than foreign-born Asian individuals (57%) to speak English proficiently.<sup>1</sup> Using data from the 2015 Asian American Quality of Life Survey (2594 participants, including Chinese, Filipino, Indian, Korean, Vietnamese, and other Asian groups), Jang and Kim<sup>127</sup> observed that 62% had LEP.

LEP may influence CVH by limiting communication of health behavior recommendations between clinicians and their patients or prevent patients with LEP from adequately reporting symptoms or health concerns. In NHANES data between 2011 and 2016, Asian American adults who spoke their native language at home most or all of the time were less likely to smoke (prevalence ratio, 0.60) or to have intermediate/poor levels of blood pressure (prevalence ratio, 0.83) compared with



**Figure 3. Key social determinants in Asian ethnic groups in the United States, American Community Survey, 2017 to 2021.**

Distribution of (A) place of birth (ie, US nativity), (B) household size, and (C) English language proficiency in Asian American ethnic groups. Place of birth indicates born within the 50 United States vs other place of birth. English proficiency is defined as speaking only English or speaking English “very well.” Data are from the American Community Survey, 2017 to 2021, available from IPUMS USA.<sup>62</sup>

adults who spoke English most or all of the time.<sup>128</sup> LEP also prominently influences CVH through its effect on quality of care related to language concordance between patients and clinicians (see the Health Care Access, Use, and Quality section for additional details).

Language and LEP are also a component of health literacy, which is the degree to which an individual can access, process, and comprehend basic health information and services to inform and participate in health decisions.<sup>129</sup> Health literacy may affect CVH and

prevention of CVDs, among other health conditions and outcomes.<sup>130</sup> Health literacy is often measured through instruments that evaluate a variety of literacy-related domains, including reading and verbal comprehension, numeracy, and recognition of medical terms, among others.<sup>130</sup> Health literacy varies across Asian American ethnic groups. In a cross-sectional study of 3053 Asian Americans (1058 Chinese individuals, 598 Korean individuals, 534 Filipino individuals, 416 South Asian individuals, and 447 Vietnamese individuals) in the 2007 CHIS, Chinese Americans, Korean Americans, and Vietnamese Americans had the lowest health literacy levels, whereas Filipino Americans had the highest level.<sup>131</sup> In the 2014 and 2017 National Health Interview Surveys, knowledge of myocardial infarction symptoms was lowest among adults born in Asia, and knowledge of stroke symptoms was lowest in immigrants from the Indian subcontinent.<sup>132</sup>

Limited health literacy is associated with a lack of knowledge about health services, which may result in the underuse of necessary medical care among individuals. For example, limited health literacy can negatively affect the use of preventive services, adherence to medication and medical instructions, and self-management skills.<sup>131,133–135</sup> Among 250 Korean American adults who participated in a diabetes self-management intervention, education and acculturation were the most significant contributors to health literacy, and self-efficacy mediated the relationship between health literacy and glucose control.<sup>133</sup> Among CHIS participants in 2007, health literacy (measured as self-reported ease of understanding prescription labels or written instructions from a doctor) was lowest among Chinese adults, Korean adults, and Vietnamese adults and highest among Filipino adults. Higher health literacy correlated with higher self-reported health in Chinese adults and Korean adults.<sup>131</sup> Enhancing health literacy among Asian Americans may increase their uptake of preventive services, self-management of cardiovascular conditions, and adherence to medical therapy.

## HEALTH CARE ACCESS, USE, AND QUALITY

Because the majority of Asian Americans are born outside of the United States (Figure 3),<sup>1</sup> engagement and familiarity with health care delivery systems in the United States are important barriers to health care access in this population. The 2015 AHA scientific statement on social determinants of risk and outcomes for CVD describes 5 mediators of health care access: approachability (the ability to know about the existence of health care services and how the services can affect their health outcome), acceptability (cultural and social factors that shape an individual's perception of various aspects of health care services), availability and accommodation (the physi-

cal existence and convenience of health care services), affordability (the ability to pay for health care services), and appropriateness (the fit between services and client needs, timeliness, and amount of care spent assessing health problems, identifying the correct treatment, and assessing the technical and interpersonal quality of the services provided).<sup>18</sup>

Asian Americans, especially Asian immigrants in the United States, experience several primary barriers related to health care systems: accessing health care services, linguistic discordance and inadequate health communication between clinicians and patients, differences in health-related beliefs and cultural incompetency of health systems, and discrimination experienced in the health care system.<sup>136</sup> Access to health care services is lower for Asian Americans compared with non-Hispanic White individuals. According to 2019 US Census data, private insurance coverage rates (ie, a metric related to health care affordability) ranged from 62.0% for Hmong Americans to 78.8% for Filipino Americans. Medicaid or public health insurance coverage rates ranged from 26.2% for Filipino Americans to 35.9% for Hmong Americans.<sup>137</sup> Mongolian Americans had the highest rate of uninsurance between 2017 and 2021 (Figure 3). Prior research suggests that gaps in coverage among some Asian ethnic groups, including Korean Americans and Vietnamese Americans, are attributable to high rates of employment in occupations that less often provide health insurance coverage such as construction, installation, maintenance, repair, transportation, material moving, or small business ownership.<sup>138</sup> Similar findings were observed among Asian American participants in the CHIS, which showed that uninsurance status was partially explained by socioeconomic and immigration-related factors. Age, marital status, household income, employment, and citizenship status were the most common predictors that influenced uninsurance rates. Self-employment was associated with a higher likelihood of uninsurance among Chinese adults, Korean adults, and Vietnamese adults and substantially decreased the likelihood of having employer-based insurance coverage for all groups.<sup>139</sup> The passage of the Patient Protection and Affordable Care Act in 2010 decreased uninsured rates for some Asian American communities. CHIS data from 2003 to 2017 showed that uninsured rates decreased among all Asian American groups, with Korean Americans experiencing the largest adjusted absolute reduction in uninsurance (by 16.8%) after Affordable Care Act enactment.<sup>140</sup>

Linguistic discordance refers to the situation in which a patient and clinician do not comfortably speak the same language and is related to the acceptability, accommodation, and appropriateness of health care services.<sup>138</sup> Linguistic barriers have consistently been found to affect health care outcomes and quality of care for nonnative English speakers across all racial and ethnic groups. The

linguistic diversity of the Asian American population is a cultural strength, but LEP may contribute to health-related challenges for Asian Americans. LEP describes any person >5 years of age who speaks English less than “very well” as defined by the US Census Bureau.<sup>141</sup> Having LEP was associated with a 2 times higher odds of not having a usual place for health care, 1.7 times higher odds of not having regular checkups, 2 times higher odds of having unmet needs for medical care, and 5 times higher odds of having communication problems in health care settings.<sup>127</sup> Inadequate health communication due to linguistic discordance may therefore be a particularly significant challenge for Asian American patients.

Interpreters may help bridge some communication gaps, but access to interpreter services may be limited in low-resource environments (which is a barrier to the approachability, acceptability, and availability and accommodation of health care services). Furthermore, some research suggests that interpreters may have limited impact in supporting care in Asian American patients. One study of Chinese-speaking patients with LEP found that the use of dual-handset interpreter phones at the bedside that enabled 24-hour access to professional interpreters significantly improved achieving standard criteria for informed consent (adjusted OR [aOR], 2.56 [95% CI, 1.15–5.72]) compared with not having the interpreter resource. However, patients with LEP who had access to the 24-hour interpreter phone still had significantly lower adjusted odds of adequately informed consent compared with English speakers (aOR, 0.38 [95% CI, 0.16–0.91]).<sup>142</sup> Conversely, an observational study of almost 3000 Chinese immigrant adults and Vietnamese immigrant adults found that patients who needed to use an interpreter were more likely to leave their appointments with unanswered questions about their care compared with patients who were able to communicate directly with their doctor in their native language.<sup>143</sup>

The COVID-19 pandemic accelerated the expansion of telehealth services and provided an opportunity to leverage technology to improve health care access. Telehealth services are related to the approachability, availability and accommodation, and appropriateness of health care services. Asian American patients seen in Federally Qualified Health Centers were least likely to use telemedicine compared with non-Hispanic White patients (OR, 0.58 [95% CI, 0.52–0.65]) and other racial and ethnic groups.<sup>144</sup> Similarly, prepandemic telehealth services use among Asian Americans was significantly lower compared with non-Hispanic White patients (OR, 0.76;  $P < 0.01$ ), which was driven primarily by LEP.<sup>145</sup>

A recent analysis found significant heterogeneity in preventive cardiovascular care among Asian American individuals with or without a history of atherosclerotic CVD. Health care use and having a usual source of care are related to the availability and accommodation and appropriateness of health services. Compared with non-

Hispanic White adults, “Other Asian” adults (including Korean Americans, Japanese Americans, and Vietnamese Americans) were less likely to visit a general practitioner (aOR, 0.80 [95% CI, 0.72–0.89]) or to self-report of measurement of blood pressure (aOR, 0.77 [95% CI, 0.66–0.89]), blood cholesterol (aOR, 0.80 [95% CI, 0.70–0.92]), and fasting blood sugar (aOR, 0.73 [95% CI, 0.63–0.84]). Conversely, Asian Indian adults were more likely to visit a general practitioner (aOR, 1.29 [95% CI, 1.01–1.66]) or to report a checked blood pressure (aOR, 1.27 [95% CI, 0.83–1.96]), blood cholesterol (aOR, 1.46 [95% CI, 1.00–2.15]), and fasting blood sugar (aOR, 1.49 [95% CI, 1.11–1.99]) compared with non-Hispanic White adults.<sup>146</sup> In the CHIS and among Medicaid beneficiaries, Korean adults were significantly less likely than non-Hispanic White adults to have a usual source of care (aOR, 0.31 in CHIS; 8.9% lower frequency of usual source of care in Medicaid data).<sup>147,148</sup> Among CHIS respondents, individuals in several Asian ethnic groups were less likely to delay necessary medical care compared with White respondents. Prior research suggests that acculturation may mediate the relationship between Asian ethnicity and access to care.<sup>148</sup>

The effect of culturally informed health beliefs may also contribute to CVH among Asian Americans and is related to the acceptability and appropriateness of health services. Asian immigrants may gravitate toward traditional, complementary, or alternative medicine practices common in Asian countries, which may preclude their full participation in the US health care system. Such factors may influence engagement in health care systems; however, there is less research on the role and use of traditional and complementary medical approaches among Asian ethnic groups.<sup>138</sup>

## CONCLUSIONS AND FUTURE DIRECTIONS

SDOH significantly and variably contribute to CVH and CVD among Asian Americans. In this scientific statement, available evidence linking several leading social determinants to CVH among Asian American communities is summarized. The role of many SDOH in CVH among Asian Americans is directionally similar to how SDOH operate in other racial groups, but several social factors uniquely contribute to health and disease risk in Asian ethnic groups. Among these unique factors are the experience of racism and discrimination, the unique patterns of and reasons for immigration, and ethnicity-specific cultural norms and acculturation processes that influence CVH behaviors. However, considerable research gaps remain, especially in identifying differences in the strength of associations and mechanisms of operation of SDOH in modifying CVH across diverse Asian American ethnic groups. Several overarching future directions are

identified that are necessary to support CVH and CVH equity in the Asian American population. First, collecting and reporting disaggregated Asian ethnic information is considered a minimum standard necessary for all future scientific research, including in population studies, observational cohorts, clinical trials, and electronic health records. The absence of disaggregated data is itself a mechanism of structural racism against Asian Americans. In March 2024, the US Office of Management and Budget published revised and updated standards for federal data collection on race and ethnicity, which include minimum requirements to collect self-identification as Asian Indian, Chinese, Filipino, Japanese, Korean, Vietnamese, and Another Group.<sup>149</sup> Optimally this standard would also be required by government and private research funding agencies.<sup>150</sup> Second, Asian ethnic groups that are less well represented in research (eg, beyond the 6 largest Asian ethnic groups: Asian Indian, Chinese, Filipino, Korean, Japanese, and Vietnamese) deserve focused research to understand CVH status and its upstream determinants in these communities.

Third, research gaps may be optimally addressed through mixed-methods approaches that incorporate rigorous quantitative analysis with appropriate disaggregation of Asian American ethnic groups<sup>150</sup> paired with rich qualitative data. Fourth, applying implementation science and hybrid effectiveness-implementation trial designs is also necessary to identify optimal solutions to maintaining CVH adapted to contexts of individual Asian American communities, built on a foundation of community engagement to ensure sufficient and appropriate representation of Asian American perspectives in research.<sup>151</sup> Fifth, interventions must address not only individual-level social needs (eg, lack of fresh, healthful produce) but also individual- and community-level social risk factors (eg, food insecurity), in addition to the underlying structural factors (eg, food access policies) that lead to suboptimal CVH.<sup>15</sup> Multilevel interventions are therefore likely to be the most successful approach for achieving CVH equity for the Asian American population and individual Asian ethnic groups.<sup>152</sup>

Built on these strategies, key future research questions are identified to advance scientific knowledge and support health through the identification of effective CVH promotion interventions for the Asian American population (Table). Such questions include investigating how experiences of racism and immigration policies influence CVH and health behaviors among Asian ethnic groups; broadening the understanding of how cultural factors and immigration-related factors influence CVH; evaluating and optimizing quality of health care for Asian American populations; and understanding differences in the experience and health consequences of SDOH in second- and subsequent-generation Asian Americans. Particular focus on the role of nativity and immigration-related factors is emphasized given surveillance epidemiology that shows how CVH and CVD risk factors and outcomes differ between immigrant and US-born Asian Americans<sup>153,154</sup>; evidence that nativity explains a significant component of differences in CVH among Asian adults compared with adults of other racial and ethnic groups in the United States<sup>155</sup>; emergence and growth of the US-born Asian American population<sup>1</sup>; and persistence of stereotypes about Asian Americans (eg, the model minority, perpetual foreigner, and healthy immigrant effect) that may bias researchers and public health professionals.<sup>156</sup> Renewed effort on reaching Asian American communities with LEP must be emphasized because these individuals are underrepresented in research and may disproportionately experience CVH disparities. It is important to note that all these SDOH are likely interrelated (Figure 1). Cumulative experience of adverse social risk factors contributes to suboptimal CVH,<sup>157</sup> so future investigation must also account for potential interactions between social factors and how these interactions might differ across Asian ethnic groups.

Advancing the science of CVH in Asian Americans has critical clinical and policy implications. Identifying upstream contributors to CVH in individual Asian ethnic groups would facilitate a precision approach that adapts clinical prevention and management recommendations to the context in which individuals and communities live.<sup>151</sup> Because the Asian American population is rapidly growing, recognizing the key factors influencing CVH in this population will require policy interventions that account for the unique experience of structural and social determinants within individual Asian ethnic communities. Currently, understanding the role of SDOH in CVH among Asian Americans is limited by minimal representation of Asian American communities in biomedical, clinical, and social research, including frequent misrepresentation of Asian Americans by aggregating diverse Asian groups into a single category and relative overrepresentation of Asian Americans who speak English in the extant literature. Dedicated investigation to identify and intervene on adverse SDOH in heterogeneous Asian American communities will support equitable promotion of CVH of this rapidly growing population.

Advancing the science of CVH in Asian Americans has critical clinical and policy implications. Identifying upstream contributors to CVH in individual Asian ethnic groups would facilitate a precision approach that adapts clinical prevention and management recommendations to the context in which individuals and communities live.<sup>151</sup> Because the Asian American population is rapidly growing, recognizing the key factors influencing CVH in this population will require policy interventions that account for the unique experience of structural and social determinants within individual Asian ethnic communities. Currently, understanding the role of SDOH in CVH among Asian Americans is limited by minimal representation of Asian American communities in biomedical, clinical, and social research, including frequent misrepresentation of Asian Americans by aggregating diverse Asian groups into a single category and relative overrepresentation of Asian Americans who speak English in the extant literature. Dedicated investigation to identify and intervene on adverse SDOH in heterogeneous Asian American communities will support equitable promotion of CVH of this rapidly growing population.

## ARTICLE INFORMATION

The American Heart Association makes every effort to avoid any actual or potential conflicts of interest that may arise as a result of an outside relationship or a personal, professional, or business interest of a member of the writing panel. Specifically, all members of the writing group are required to complete and submit a Disclosure Questionnaire showing all such relationships that might be perceived as real or potential conflicts of interest.

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**Disclosures**

**Writing Group Disclosures**

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\*Modest.  
†Significant.

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\*Modest.  
†Significant.

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