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Self-rated Health Disparities Among Asian Americans: Mediating Roles of Education Level and Household Income

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Abstract

Asian Americans represent an understudied racial category in health disparity research. Using data from the National Asian American Survey, we examined self-rated health (SRH) disparities in eight Asian subgroups compared to Whites, explored the moderating effect of nativity status, and investigated the mediating effect of socioeconomic status. None of the Asian subgroups fared better than Whites. Across Asian subgroups, South Asians, Japanese, and Filipinos had the best SRH, with Cambodians being the most disadvantaged. Nativity was a significant moderator in that SRH disadvantages were only manifested among immigrants for Chinese, Korean, Hmong, and Vietnamese and only among natives for Filipinos. For most groups showing SRH disadvantages, SES played partial mediating roles. Education showed a higher explanatory power than income for inter-ethnic SRH disparities. Contrary to popular perception, Asian Americans are not the model minority in terms of SRH. Cultural influences on SRH reporting biases were discussed.

Keywords Asian American · Self-rated health · Health disparity · Socioeconomic status · Immigrants

Introduction

The Asian American population grew 72%—from 11.9 million to 20.4 million —between 2000 and 2015 [1], exhibiting the fastest growth rate of any major racial or ethnic group in the United States. This growth has been primarily fueled by immigration [2]. Considering their socioeconomic achievements, Asian Americans are thought to be 'model minority' in the U.S. [3]. This characterization, however, ignores the considerable diversity that exists amongst Asian Americans, particularly in terms of ethnicity, immigration experience, socioeconomic status, and cultural background [4]. Health disparities across Asian ethnic subgroups are underresearched as Asian Americans are often combined into one group. Limited evidence suggests Asian Americans as a whole have higher risks than Whites in physical health conditions such as cancer, diabetes, and cardiovascular diseases [2, 4, 5]. Although arguably only longevity can be viewed as a single summative measure of the state of an individual's health [6], self-rated health (SRH) is another comprehensive health measure that has been found to be a sensitive predictor of morbidity and mortality across sociodemographic groups [7, 8]. Studying SRH disparities, between Asian Americans and Whites as well as across Asian subgroups, is important insofar as it can provide nuanced evidence informative for interventions and policies developed to improve health and reduce health disparities for Asian Americans overall and tailored to Asian subgroups in specific.

Health disparity researchers have generally focused more on Whites [9–11], Blacks [12], and Latinos [13] than on Asian Americans. Little work has been done to investigate SRH disparities across Asian American subgroups despite their diverse socioeconomic and lifestyle profiles. This diversity makes comparing Asian Americans with Whites as though they were a monolithic group problematic [4]. In fact, a limited number of studies have produced mixed findings regarding SRH disparities involving Asian Americans [14–16], especially among Asian immigrants. One study examined SRH disparities comparing Asian subgroups with Whites, finding that Chinese, Filipino, Korean, Vietnamese, and Other Asian Americans all fare worse than Whites in SRH in California [17]. This study did not include certain Asian groups such as South Asians, Hmong, and

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Cambodians in the analyses and was limited in generalizability as it was focused on one state.

A possible moderating factor for SRH disparities by race and ethnicity is immigrant status. About 59% of all Asian Americans are foreign-born, though nativity composition differs across Asian ethnicities [1]. For example, while 27% of Japanese Americans are foreign-born, the majority of Chinese and South Asian Americans are immigrants [18]. A routinely observed pattern concerning immigrant health is the epidemiological paradox/immigrant health paradox [19], which refers to certain immigrant groups, Hispanics in particular, simultaneously experiencing lower socioeconomic status (SES) and better health and longevity. But whether Asian immigrants follow this pattern is less known. A recent study jointly investigated the associations of the nativity and occupational class with health and found a foreign-born health-protective effect for some outcomes including SRH [20]. That said, the findings also revealed complex ways nativity and occupational class influence the subjective health of Asian Americans and the authors cautioned against generalizing good health to all Asian immigrants using the "immigrant health paradox" framework because it oversimplifies complex patterns shaped by a myriad of individual or subgroup characteristics (e.g., acculturation, immigrant history, and socioeconomic status in the country of origin). As such, how Asian ethnic disparities in SRH vary according to nativity needs to be further studied.

Given the observed SRH disparities for Asian Americans, a follow-up question is whether they can be explained or mediated by socioeconomic status (SES), which is linked to both health [21] and race/ethnicity [22]. In other words, if a group shows worse SRH and lower SES than Whites, then it follows that the SRH disadvantage of this group is partly due to its lower SES compared to Whites given the well-documented socioeconomic gradient in health [20]. Meanwhile, if a group shows worse SRH and higher SES than Whites, then SES serves as a suppressor of SRH disparity, not a mediator; that is, the SRH disadvantage of this group will become even greater after SES is controlled for. In this case, non-SES factors must play a more salient role in explaining this group's lower SRH despite its higher SES. Different SES indicators may matter in different ways. Education is beneficial to health via its positive link with information processing ability and self-regulation competence both of which are conducive to healthy lifestyles [23]. Income is salubrious because economic resources can directly help with purchasing healthful goods such as better living conditions, better nutrition, and even leisure that can be used for recreational physical activity. As far as we know, no study has explored the mediating role of SES for SRH disparities comparing Asian American subgroups with Whites.

In this study, we use recently collected, nationally representative data to comprehensively examine these issues by exploring the main effects of Asian American subgroup membership on SRH relative to Whites, the moderating effects of immigrant status, and the mediating roles education and income might play in Asian American SRH disparities. Specifically, we ask the following research questions:

1. How do Asian subgroups differ from Whites in SRH?
2. Is immigrant status a moderator for these differences? If so, what are SRH disparity patterns stratified by immigrant status?
3. Do socioeconomic indicators such as education and household income help explain these SRH disparities?

Methods

Sample

To examine these research questions, we used data from the National Asian American Survey (NAAS), collected in Fall 2016. The NAAS is a scientific and nonpartisan effort to poll the opinions of Asian Americans and Pacific Islanders funded by several organizations, including the National Science Foundation and Russell Sage Foundation. We included a total of 8061 respondents from merged files of NAAS 2016 Pre-Election Survey and NAAS 2016 Post-Election Survey in our analytical sample, including Whites and Asians. The study was exempted from ethical review requirement by the Institutional Review Board (IRB) because secondary data were used in the analysis with subject identifiers removed.

Measures

The dependent variable, a five-level ordinal variable on SRH ranging from 1 to 5, was derived from the question that asks how respondents would rate their health from response options including excellent, very good, good, fair, and poor. The scale was reversed so that higher values indicated better SRH.

Race/ethnicity was measured in detail, allowing for multiple Asian group comparisons. We combined Bangladeshi, Indian, and Pakistani into a South Asian category to create a sufficiently sizable subsample, following previous work and considering these ethnic groups' relative historical/cultural homogeneity [4, 24]. We then examined eight Asian ethnicities, including South Asian, Cambodian, Chinese, Filipino, Hmong, Japanese, Korean, and Vietnamese. Non-Hispanic Whites (abbreviated as "Whites" hereafter) were included as the reference group. Education was measured by the participant's highest degree/schooling completed, including three categories: high school degree or less, some college but without a college degree, and a college degree or higher. Household income was measured by an ordinal

variable including seven levels: Up to $20,000, $20,000 to $50,000, $50,000 to $75,000, $75,000 to $100,000, $100,000 to $125,000, $125,000 to $250,000, and $250,000 or above. We also included age (measured in years), gender (with female coded 1 and male coded 0), and immigrant status (with foreign-born coded 1 and native-born coded 0) in the analyses.

Missing Value Imputation

Although the proportions of data missing in immigration, gender, and education variables were marginal, missingness in age (11%), self-rated health (14%), and household income (18%) were more sizable. Conventional listwise deletion (i.e., complete case analysis) methods for addressing missing data are known to, on average, increase bias in coefficients under missing at random (MAR) assumptions, and to weaken statistical power [25]. We used *multiple imputations by chained equations* (MICE) for the full sample using the mi commands in Stata [26]. Using MCMC (Markov chain Monte Carlo) methods, MICE is a recognized method to impute missing data based on distributions of the observed data [26].

Statistical Analysis

Descriptive statistics (means, standard deviations (SDs), and frequencies) for all the variables included in the regression analysis were first calculated. Figures graphically showing SRH patterns by race/ethnicity and nativity were created using the ggplot2 function in R [27]. Multivariate-adjusted Ordinary Least Squares linear regression modeling was then run to examine the associations between race/ethnicity and SRH controlling for age and gender. Interaction effects between race/ethnicity and nativity were examined. Model 1 included all the racial/ethnic group dummy variables plus age, gender, and immigrant status. Model 2 added education to Model 1, and Model 3 added household income to Model 2 to examine the hypothesized mediating role of SES indicators for racial/ethnic disparities in SRH compared to Whites. Sobel test [28] was performed on non-imputed data to examine the mediating effects of education and income on SRH disparities. Regression and mediation analyses were performed STATA 15.0. (College Station, TX).

Results

Sample Statistics

Table 1 presents descriptive statistics for all variables included in the analyses. Among Asian subgroups, South Asian is the largest (19%), followed by Filipino (11%), Korean (11%), Vietnamese (11%), Chinese (10%), Japanese (10%), and Cambodian (9%), with the Hmong being the smallest (8%). About 11% of the whole sample is Whites. The mean education in the full sample is 1.46, corresponding to a level higher than a high school degree but lower than a college degree. The mean education level is higher among natives (1.8) than among immigrants (1.3).

Table 1 Whole, native and immigrant sample statistics (MI = 30)

Variables	Whole sample				Native sample				Immigrant sample			
	Mean	N	SD	%	Mean	N	SD	%	Mean	N	SD	%
Self -rated health (1-poor, 5- excellent)	3.31		1.2	na	3.66		1.1	na	3.14		1.21	na
Whites	0.11	887	0.32	11	0.33	843	0.47	33	0.01	55	0.11	1
South Asian	0.19	1532	0.39	19	0.11	281	0.32	11	0.22	1212	0.42	22
Cambodian	0.09	725	0.28	9	0.02	51	0.14	2	0.12	661	0.32	12
Chinese	0.1	806	0.31	10	0.05	128	0.22	5	0.13	716	0.34	13
Filipino	0.11	887	0.31	11	0.11	281	0.31	11	0.11	606	0.31	11
Hmong	0.08	645	0.28	8	0.04	102	0.19	4	0.1	551	0.31	10
Japanese	0.1	806	0.3	10	0.26	664	0.44	26	0.03	165	0.17	3
Korean	0.11	887	0.31	11	0.05	128	0.22	5	0.13	716	0.34	13
Vietnamese	0.11	887	0.31	11	0.03	77	0.17	3	0.14	771	0.35	14
Female	0.5		0.5	50	0.48		0.5	48	0.5		0.5	50
Age	55.1		19.35	na	47.75		21.68	na	58.52		17.13	na
Household income	3.13		1.87	na	3.64		1.79	na	2.89		1.86	na
Education	1.46		0.79	na	1.8		0.46	na	1.3		0.85	na
Immigrant	0.68		0.47	68	NA		NA	na	NA		NA	na
Total		8061				2554				5507		

The mean household income level is 3.13, corresponding to a household income level of $50,000 to $75,000 per year. Again, the household income level is higher among natives (3.64) than among immigrants (2.89). The average SRH is 3.31 (scale 1–5) in the full sample, better among natives (3.66) than among immigrants (3.14), representing a level between "good" and "very good." Fig. 1 presents a comprehensive picture of SRH across ethnicity and nativity showing that natives report better SRH than immigrants for all the Asian subgroups as well as for Whites and that Cambodians, regardless of nativity, and Hmong, Korean and Vietnamese immigrants are the most disadvantaged in SRH among all the racial/ethnic and immigrant groups. The SRH gap between natives and immigrants is remarkably large for Hmong and Vietnamese. Native-born Hmong and Vietnamese are among the top three racial/ethnic/immigrant subgroups in SRH, while their foreign-born counterparts are among the bottom three.

Effects of Asian Ethnicity on SRH

Statistical analyses to examine the effects of Asian American ethnicity on SRH were based on three samples: the whole sample, native sample, and immigrant sample. Because the moderation analysis of ethnicity and immigration status yielded statistically significant results, we analyzed native and immigrant samples separately.

No significant effects of South Asian and Japanese ethnicity are observed (See Tables 2, 3 and 4). Cambodians appear to fare significantly worse than Whites in all samples, including the whole sample ($\beta = -0.72$; $p < 0.001$), native sample ($\beta = -0.67$; $p < 0.001$), and immigrant sample ($\beta = -0.78$; $p < 0.001$). Among Filipinos, only native-born individuals have worse SRH than Whites ($\beta = -0.20$; $p < 0.05$). Chinese, Hmong, Koreans, and Vietnamese fare worse than Whites in the whole sample (Table 2) and immigrant subsample (Table 4), but not among natives (Table 3), suggesting that the significant results in the whole sample for these Asian subgroups be driven by the results from the immigrant subsample.

Mediation of SES

The mediation analyses of SES, presented in Models 2 and 3 in Tables 2, 3 and 4, show mixed effects for different Asian ethnicity. For Cambodians, the ethnicity coefficient reduces

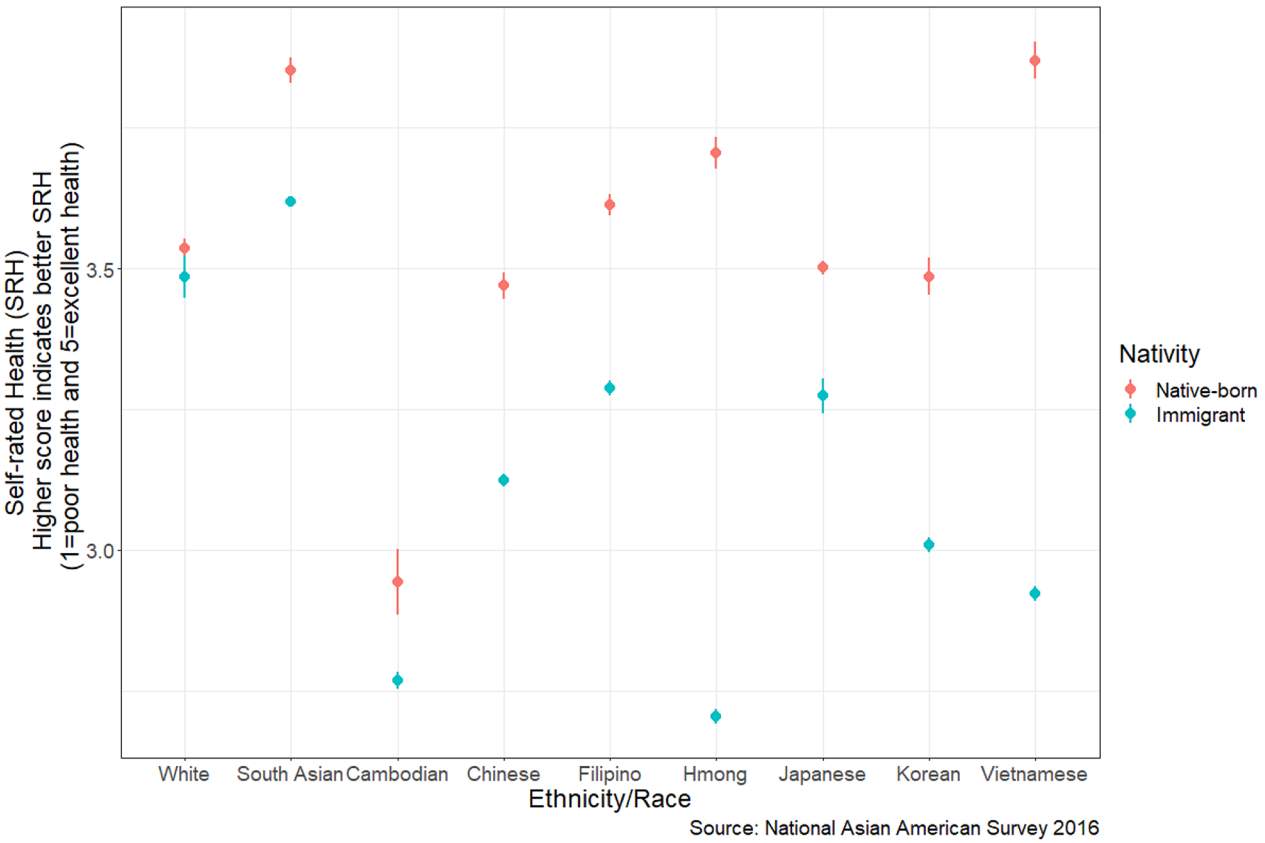

Fig. 1 Mean self-rated health (SRH) with standard error bars across Asian ethnicities and other racial categories by nativity (MI = 30)

Table 2 OLS linear regression of self-rated health in the whole sample (MI = 30)

	Model 1	Model 2	Model 3
Race/ethnicity	Whites ref	Whites ref	Whites ref
South Asian	0.0150	− 0.0270	− 0.0738
	(0.26)	(− 0.48)	(− 1.33)
Cambodian	− 0.722***	− 0.366***	− 0.315***
	(− 10.32)	(− 4.98)	(− 4.34)
Chinese	− 0.281***	− 0.205***	− 0.160**
	(− 4.55)	(− 3.35)	(− 2.66)
Filipino	− 0.0582	− 0.0832	− 0.0667
	(− 0.96)	(− 1.39)	(− 1.14)
Hmong	− 0.709***	− 0.371***	− 0.307***
	(− 10.37)	(− 5.18)	(− 4.34)
Japanese	0.0317	− 0.00657	− 0.0322
	(0.56)	(− 0.12)	(− 0.58)
Korean	− 0.395***	− 0.414***	− 0.375***
	(− 6.23)	(− 6.64)	(− 6.13)
Vietnamese	− 0.661***	− 0.558***	− 0.478***
	(− 10.02)	(− 8.52)	(− 7.40)
Covariates			
Age	− 0.0153***	− 0.0132***	− 0.0117***
	(− 17.71)	(− 15.06)	(− 13.52)
Female	− 0.132***	− 0.0742**	− 0.0473
	(− 4.88)	(− 2.75)	(− 1.77)
Immigrant	− 0.0924*	− 0.0343	− 0.0355
	(− 2.20)	(− 0.83)	(− 0.87)
Education		0.317***	0.207***
		(13.90)	(8.80)
Household income			0.130***
			(15.21)
Intercept	4.544***	3.838***	3.477***
	(75.65)	(48.00)	(42.62)
N	8061	8061	8061

t statistics in parentheses

*p < 0.05 **p < 0.01 ***p < 0.001

Table 3 OLS linear regression of self-rated health in the native sample (MI = 30)

	Model 1	Model 2	Model 3
Race/ethnicity	Whites ref	Whites ref	Whites ref
South Asian	− 0.0363	− 0.0285	− 0.0709
	(− 0.46)	(− 0.36)	(− 0.91)
Cambodian	− 0.674***	− 0.536**	− 0.439**
	(− 3.96)	(− 3.12)	(− 2.59)
Chinese	− 0.147	− 0.169	− 0.158
	(− 1.35)	(− 1.55)	(− 1.46)
Filipino	− 0.208*	− 0.197*	− 0.188*
	(− 2.57)	(− 2.45)	(− 2.37)
Hmong	− 0.221	− 0.145	− 0.0845
	(− 1.71)	(− 1.12)	(− 0.66)
Japanese	0.0121	− 0.0110	− 0.0335
	(0.20)	(− 0.19)	(− 0.57)
Korean	− 0.126	− 0.133	− 0.133
	(− 1.14)	(− 1.20)	(− 1.22)
Vietnamese	− 0.188	− 0.189	− 0.123
	(− 1.29)	(− 1.30)	(− 0.86)
Covariates			
Age	− 0.0114***	− 0.0107***	− 0.0100***
	(− 9.18)	(− 8.55)	(− 8.19)
Female	− 0.0449	− 0.0387	− 0.0103
	(− 0.99)	(− 0.85)	(− 0.23)
Education		0.241***	0.135**
		(4.76)	(2.61)
Household income			0.116***
			(8.90)
Intercept	4.288***	3.816***	3.544***
	(56.11)	(30.46)	(27.87)
N	2554	2554	2554

t statistics in parentheses

*p < 0.05, **p < 0.01, ***p < 0.001

from − 0.72 to − 0.36 from Model 1 to Model 2, a 50% reduction in the whole sample after adjusting for education and another 13% reduction from Model 2 to Model 3 after adjusting for household income (see Table 2). These results show that Cambodians' SRH disadvantage is substantially attributable to their lower educational attainment and a lesser extent to their lower-income as well. For Chinese and Vietnamese, the SES mediating patterns are similar. That is, education plays a slightly more important mediating role than income but both SES indicators contribute to their ethnicity effects. For Hmong, the income also plays a mediating role but education's mediating effect is considerably greater than that of income. By contrast, for Koreans, SES matters little in explaining their SRH advantage. In summary, SES appears to play certain mediating roles for SRH disadvantages for Cambodian, Chinese, Hmong, and Vietnamese but not for Koreans or Filipinos. It is a moot point for South Asians and Japanese as they do not differ significantly than Whites in SRH. The Sobel test analyses produced significant results for both education and household income for the whole sample.

Covariates

We controlled for age and gender in all the regression models (Tables 2, 3 and 4). Results show that age and female gender are linked to lower SRH while education and household income are associated with better SRH. These patterns are consistent across the whole and subsamples except that

Table 4 OLS Linear regression of self-rated health in the immigrant sample (MI = 30)

	Model 1	Model 2	Model 3
Race/ethnicity	Whites ref	Whites ref	Whites ref
South Asian	− 0.0426	− 0.0460	− 0.102*
	(− 0.81)	(− 0.89)	(− 1.98)
Cambodian	− 0.788***	− 0.364***	− 0.314***
	(− 12.39)	(− 5.16)	(− 4.54)
Chinese	− 0.370***	− 0.222***	− 0.170**
	(− 6.27)	(− 3.78)	(− 2.91)
Filipino	− 0.0296	− 0.0279	− 0.0147
	(− 0.46)	(− 0.44)	(− 0.24)
Hmong	− 0.852***	− 0.421***	− 0.354***
	(− 13.57)	(− 5.97)	(− 5.11)
Japanese	− 0.0461	− 0.0402	− 0.0383
	(− 0.45)	(− 0.40)	(− 0.38)
Korean	− 0.490***	− 0.465***	− 0.421***
	(− 8.22)	(− 7.90)	(− 7.31)
Vietnamese	− 0.770***	− 0.605***	− 0.520***
	(− 13.15)	(− 10.25)	(− 8.92)
Covariates			
Age	− 0.0169***	− 0.0145***	− 0.0127***
	(− 16.47)	(− 13.76)	(− 12.21)
Female	− 0.174***	− 0.106***	− 0.0733*
	(− 5.61)	(− 3.41)	(− 2.38)
Education		0.320***	0.203***
		(12.51)	(7.70)
Household income			0.141***
			(14.31)
Intercept	4.642***	3.911***	3.502***
	(68.34)	(42.23)	(36.81)
N	6291	6291	6291

t statistics in parentheses

*p < 0.05, **p < 0.01, ***p < 0.001

the female gender is not a significant covariate in the immigrant sample.

Discussion

The key purposes of this study were to examine SRH disparities between Asian American subgroups and Whites, assessing the moderating effects of immigration status, and exploring the mediating effects of education and household income. We find the eight Asian American subgroups have either worse or comparable SRH relative to Whites and that South Asians is the most advantaged Asian subgroup in SRH while Cambodians are the most disadvantaged. The rest of Asian American subgroups sit somewhere in between with Filipinos and Japanese having better SRH than the others, followed by Chinese and Korean and then by Hmong and Vietnamese. A further investigation by nativity reveals SRH levels among native-born Hmong and Vietnamese are among the top three (see Fig. 1), but their immigrant counterparts are among the bottom three in the racial/ethnic/immigrant groups' comparison. The mediation analyses of education and income have produced varied results across ethnicity and immigration status.

South Asians, Japanese, and Filipino immigrants stand out in SRH compared to other Asian American immigrant subgroups, probably due to higher SES and greater integration into the main society. Japanese have the lowest immigrant concentration and highest rates of intermarriage with Whites among Asian Americans [4]. South Asians are composed mainly of immigrants positively selected by socioeconomic resources [1], which may contribute to their better SRH [29]. Filipinos have relatively long immigration history (dating back to 1965), substantial English language proficiency, high prevalence of college education, and high incomes [30]. It is intriguing, though, why Filipino natives and immigrants differ to the extent that native-born Filipinos—but not immigrants—exhibit worse SRH than Whites.

In our sample, SRH levels are, on average, lower among Chinese and Koreans than among South Asians, Japanese, and Filipinos, but their disadvantages only manifest among immigrants. Foreign-born Chinese and Koreans are similar in East Asian cultural origins, recent immigration history, and socioeconomic profiles [4]. They are slightly less socioeconomically successful than South Asians in terms of education and income and less integrated than Japanese and Filipinos [4]. Interestingly, SES plays a more notable mediating role for Chinese immigrants than for Korean immigrants. These results suggest that non-structural factors such as those related to culture might help explain the SRH disadvantages among Korean immigrants. Indeed, the holistic view and collectivistic orientation prevalent in East Asian cultures may have largely shaped their health beliefs and experiences that diverge from the Western biomedical model [31]. This orientation of health beliefs embedded with internal emotional functioning and social relationships could pose another layer of consideration when assessing and/or self-reporting one's health status.

This native-immigrant gap in SRH appears even larger among Hmong and Vietnamese. Native-born Hmong and Vietnamese are among the most advantaged in our sample, and severe SRH disadvantage is concentrated among immigrants only. Remarkable SRH disadvantage is also observed for Cambodians regardless of nativity, making them the least healthy among all the racial/ethnic groups we examined. For Hmong and Vietnamese immigrants and Cambodians, the SRH disadvantages are mediated by both education and income, although the explanatory power of education seems to be greater than that of income. These three groups share

common characteristics—such as lower SES—compared to other Asian Americans [32] and moderate to severe exposure to military violence (i.e., Vietnam war, Cambodian civil war, and Hmong being persecuted during and after CIA led 'Quiet War' in Laos') [33], which can be traumatizing. Moreover, they may be less integrated into American mainstream culture and society. For example, prior work shows that Hmong tend to be resistant to assimilating to American society, prioritizing traditions, especially through frequently resisting modern medicine and maintaining traditional medicinal practice and belief [33]. More work needs to be done to better understand the sharp contrast between natives and immigrants among Hmong and Vietnamese in SRH to confirm the observed patterns can be replicable.

Lastly, our finding that natives report significantly better SRH than immigrants in nearly all racial/ethnic groups except for the Filipinos is worth commenting. It is surprising and contrary to the generally believed immigrant health advantage and previous findings that foreign-born Asians have consistently lower mortality than the other racial-ethnic groups regardless of nativity [34–36]. This pattern has been documented in prior work studying Asian and Hispanic immigrant health. For example, the results from Huh and colleagues show that immigrants were more likely to rate poor SRH while reporting fewer chronic conditions than their native counterparts [14]. After all, SRH is not free of response bias despite the comprehensive assessment and validation of its psychometric properties. As far as we know, the measurement validity of SRH has not been tested separately for immigrants versus natives among Asian Americans. There may exist cultural influences on SRH validity. One study reported that different racial/ethnic/immigrant groups had different tendencies in choosing midpoints in SRH scales (e.g., tendency to choose good rather than excellent), especially among Asian immigrants [17]. Yet another study found no systematic difference between Asian immigrants and native-born Asians in reporting SRH [7]. The reliability and validity of SRH, specifically for Asian subgroups, needs to be further examined.

This study is also limited in the representativeness of our White participants of the general White population in the US, considering that only 11% of the NAAS sample are Whites. To get a better sense of our sample representativeness, we compared the mean levels of the key variables (SES, SRH) of our sample with those from national surveys such as NHANES and NHIS. We found that our sample is biased toward higher education and household income compared to samples from either NHANES [37, 38] or NHIS [39]. That said, this higher SES bias is present not only among Whites but also among most Asian American ethnic groups in our sample which makes it less problematic for within-sample group comparison. The distribution of the responses on SRH in the NAAS sample is similar to that of BRFSS 2018 [40], with about 16% Whites responding poor/fair SRH in both samples.

Besides, our study only examined education and income as the hypothesized SES mediators for SRH disparities among Asian Americans, while SES can be measured in more detailed and comprehensive ways. Given the temporal variability of income, economic resources can be better captured by cumulative exposure to affluence or poverty. Future studies may also focus on unfair practices in employment (known as the 'glass ceiling' effect) which refers to discriminatory practices in the forms of promotion denials of high achieving Asian Americans [3] evidenced by a significant income gap present between highly educated Asian Americans and Whites [41]. Perceived unfair treatment originating from work-based discrimination can trigger stress and lead to compromised health and wellbeing among Asian Americans. Future research should also examine non-structural factors such as language barrier [42] as potential mediators that explain SRH disparities among Asian Americans.

Conclusion

In summary, the key contribution of this study is that it provides novel evidence to enhance our knowledge on the patterns and sources of SRH disparities among Asian American subgroups using data from a recently collected, nationally representative sample. In terms of SRH, no Asian groups fare better than Whites, contradicting the 'Model Minority' stereotype. On the whole, South Asians, Japanese, and Filipinos have the best SRH among all Asian subgroups examined in this study, followed by Chinese and Koreans, and then by Hmong and Vietnamese, with Cambodians being the most disadvantaged. Adding nativity to the analyses changes this general picture such that SRH disadvantages are only manifested among immigrants for Chinese, Korean, Hmong, and Vietnamese and among natives for Filipinos. For most groups showing SRH disadvantages, SES plays some mediating roles with education's explanatory power greater than that of income. More work needs to be done to replicate these findings and further examine the mediators and moderators of SRH disparities associated with Asian ethnicities in the U.S.

Compliance with Ethical Standards

Conflict of interest All authors declare they have no conflicts of interest.

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