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# A Health Profile and Overview of Healthcare Experiences of Cambodian American Refugees and Immigrants Residing in Southern California

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## Abstract

**Background:** Asians Americans are understudied in health research and often aggregated into one homogenous group, thereby disguising disparities across subgroups. Cambodian Americans, one of the largest refugee communities, may be at high risk for adverse health outcomes. This study compares the health status and healthcare experiences of Cambodian American refugees and immigrants.

**Methods:** Data were collected via questionnaires and medical records from two community clinics in Southern California (n=308). Chi-square and t-tests examined the socio-demographic differences between immigrants and refugees, and ANCOVA models compared the mean

differences in responses for each outcome, adjusting for age at immigration, education level, and clinic site.

**Results:** Cambodian American refugees reported overall lower levels of health-related quality of life (all p's≤0.05 in unadjusted models) and self-rated health (unadjusted means (SD)=18.2 (16.8) vs 21.7 (13.7), p<0.05), but either similar or more positive healthcare experiences than Cambodian American immigrants. In adjusted analyses, refugees had higher rates of diabetes and cardiovascular disease risk (e.g. heart condition and hypertension; p's<0.05) compared to Cambodian American immigrants. There were minimal differences in self-reported health behaviors between the two groups.

**Discussion:** There is a need for more health promotion efforts among Cambodian American refugees and immigrants to improve their health outcomes and perceived wellbeing.

### Keywords

disparities; health status; healthcare experiences; refugees; immigrants; Cambodian American

## INTRODUCTION

Demographic trends documenting the increasing proportion of refugees and immigrants within the United States (US) population has motivated the burgeoning public health focus on the health of these populations. Asian Americans are the fastest growing racial/ethnic minority group in the US, and yet, remain largely understudied in health services research.[1–3] In addition to calling for more research on Asian Americans, in general, health scholars and advocates have identified the need for the disaggregation of data and analyses by Asian ethnic subgroups.[4–9] Asian Americans, with more than 20 ethnic subgroups, constitute a heterogeneous group comprised of diverse socioeconomic profiles, distinct languages, cultures, pre-immigration and post-immigration experiences, and health outcomes.[8, 9] However, they are often aggregated into one category that disguises these differences and hinders progress towards addressing the distinct health challenges faced by particular communities.[7, 10]

Moreover, a glaring omission in health research among Asian Americans is the dearth of studies on Cambodian Americans,[11] who constitute one of the largest refugee communities in the US. Cambodian American refugee migration largely began after 1975, following a coup in 1970 that marked the beginning of a civil war and the takeover by the Khmer Rouge from 1975-1979.[12] Almost 158,000 Cambodians gained entry into the United States between 1975-1994 as refugees, prior to the end of the US Cambodian refugee program in 1994. Less than half (40-50%) of the Cambodians who arrived in the United States either during the regime's existence or after the overthrow found employment in blue-collar occupations. The remainder, a significant portion composed of households headed by women whose fathers, husbands, or sons were killed, has relied on welfare and other forms of public assistance.[13, 14]

In the US, there are reportedly an estimated 327,719 Cambodian Americans.[15] Cambodian Americans continue to rank among the highest in income poverty.[16] Relative to other Asian

Americans, they also rank among the highest in welfare and social security income dependence, and the lowest in educational attainment, second to the Hmong community.[16–18] Although Cambodian Americans can be found in every state, there are large communities that reside in California, Massachusetts and Washington, with the largest Cambodian community outside of Southeast Asia being in Long Beach, California, in southern California.[19] In Long Beach, one-third of the Cambodian American population lives below the federal poverty line[20] compared to approximately one-tenth (12%) of Asian Americans living in Los Angeles county.

Although limited, the existing literature on the health status of Cambodian Americans has primarily focused on documenting their poor mental health status, and in particular the high rates of post-traumatic stress disorder (PTSD) and depression.[8, 12, 19, 21–25] Cambodian Americans with depression and PTSD are not only at a higher risk for developing additional chronic conditions, but also the least likely to receive appropriate mental health services.[25] Albeit much less studied, Cambodian Americans also report poorer physical health than their Asian and non-Asian counterparts, including poor physical functioning, and are more likely to meet criteria for disability.[8, 25] The need for more focus on physical health indicators has been documented.[8, 26] Furthermore, no study to date has documented the health care experiences of Cambodian Americans. Understanding patient healthcare experiences has become a central goal of US health policy, particularly in efforts to reduce health disparities.[27, 28]

The current study helps fill this gap in the literature by examining the general health profile and the healthcare experiences of Cambodian Americans in a primary care setting. Moreover, this study compares the health profile and healthcare experiences of Cambodian Americans who came to the US as part of the refugee program from those who immigrated later. Such data can help design and inform future culturally appropriate policies and programs to address the needs of one of the country's largest refugee and immigrant populations.

## Methods

### Sampling Design and Data Collection

The data were collected from 390 Cambodian American patients recruited from two community clinics (one which has eleven different locations and the other with one location) in Long Beach, California. Patients were recruited as part of a larger parent study (described in more detail in Biegler et al., 2016).[29] In brief, the parent study was designed to test the effectiveness of a multi-component Health Information Technology program (HIT), which focused on training providers on providing culturally appropriate, trauma-informed mental health care to patients in a primary care setting.[29] Medical providers were randomized to receive training particular to the HIT intervention or to receive training on providing culturally-competent care in general. Cambodian American patients who saw medical providers enrolled in the study were identified through clinic patient registries. Patients 18 years of age or older were invited to participate during their existing scheduled appointments. Patients with severe visual or hearing impairments and/or severe life-threatening illness were excluded. A bilingual Khmer research assistant described the study

to each patient, obtained informed consent from any interested patients and administered the baseline questionnaire. All study protocols were approved by the University's Institutional Review Board.

Data for this study came from two sources: 1) the patient interviewer-administered questionnaire that was collected at the start of the study, prior to the patient participation in the parent intervention, and 2) the patient's medical record. Of the 338 respondents who completed the questionnaire, 22 respondents were excluded because they were US born, and eight were removed due to missing data on the year of US arrival. This yielded an analytical sample of 308 respondents.

## Socio-demographics

Data were collected on the respondents' sociodemographic information, including gender current age, age at US entry, year of immigration to the US (coded as refugee if relocated to US prior to 1995 or immigrant if relocated to the US in 1995 or later)[14] , educational attainment (less than high school vs. high school or greater), religious affiliation (Buddhist vs. other), employment status (full-time, part-time, homemaker/retired, not employed, student, disabled, and other), participation in Food Stamps program (yes/no), marital status (married, divorced/separated, widowed, or never married), total annual household income (less than $29,000 vs. $30,000 and higher), and household size.

## Health-Related Quality of Life

Health-related quality of life was measured using the SF-36 Health Survey (Version 2).[30, 31] The SF-36 has been translated into over 50 languages and is used widely in the US, Europe and throughout Asia. This 36 multi-item scale addresses eight health domains: physical functioning, bodily pain, role limitations due to physical health problems, role limitation due to personal or emotional problems, emotional well-being, social functioning, energy/fatigue, and general health perceptions. Average scores were calculated for each scale, and then transformed from original scoring to range from 0 to 100, such that higher scores reflect more positive health outcomes. Self-rated health was measured by a single-item measure that asked respondents to rate their general health as excellent, very good, good, fair or poor. Responses were transformed to range from 0=poor to 100=excellent.

## General Health

Indicators of participants' general health status were abstracted from the patients' medical record, including provider diagnosed type 2 diabetes, heart condition (e.g. coronary artery disease, congestive heart failure, cardiac dysrhythmia, and value disease), hypertension, and dyslipidemia. Weight status was measured by abstracting patients' height and weight from their medical record in order to calculate their body mass index (BMI) per the CDC guidelines as follows: "underweight" if below 18.5, "normal or healthy weight" if between 18.5-24.9, "overweight" if 25.0-29.9 and "obese" if 30 or higher.[32]

## Health Behaviors

Physical activity was measured using the following three items adopted from the 2015 California Health Interview Survey (CHIS) to assess frequency and duration of engaging in

walking, moderate physical activities, and vigorous physical activities in the past week. We used 150 minutes of at least moderate intensity activity per week (combined walking with other moderate activity) and 75 minutes of vigorous intensity activity per week as cut points to approximate the current Centers for Disease Control physical activity recommendations[33] for adults age 18 and older.

Alcohol consumption was measured by the following item, “During the past 30 days, did you drink any alcohol such as a 12 ounce bottle or can of beer, 8 ounce glass of wine, herbal tea with wine, or one cocktail or shot containing hard liquor?” (no/yes). This item has been used previously among Cambodian Americans to assess the prevalence of alcohol consumption and problematic drinking.[34]

To examine gambling behavior, respondents were asked, “In your lifetime, have you ever lost more than 100 dollars in a single year because of gambling?” Anyone who responded yes was then asked a series of questions using the South Oak Gambling Screen (SOGS),[35] one of the most widely used screeners for problem gambling, which has been used among Cambodian Americans.[36] Scores on the SOGS range from 0-20, with a score of 5 or more indicative of pathological gambling.

### Patient-Provider Relationship Trust and Perceived Quality of Care

A single-item assessed the frequency with which patients reported having difficulty speaking or understanding their provider because of language differences during the prior 12 months. An additional question asked patients how often in the past 12 months they needed an interpreter to help them speak with their medical provider. Ratings for both items were made on a 5-point scale, 1=never to 5=always.

Patient trust in their provider was measured using a 5-item scale developed by Thom and Campbell.[37] Ratings were made on a 5-point scale (1=never, 5=always). Items were averaged to form a composite measure (Cronbach’s alpha=0.90).

Participants’ evaluation of their overall quality of care was assessed using a single-item that asked them to rate the quality of care they received. Ratings were made on a 5-point scale (1=Poor, 5=Excellent). Perceived discrimination was assessed by asking participants to think about all of the experiences they had with health care visits in the last 12 months, and to rate how often they felt they were unfairly treated or treated with disrespect because of their: 1) ability to speak English, 2) health insurance status, and 3) racial or ethnic background. Ratings were made on a 5-point scale (1=never, 5=always).

### Analytic Plan

We used SPSS V.24 to analyze the data. Descriptive statistics (e.g. $\chi^2$ and t-tests) were generated to examine the socio-demographic characteristics of the study sample comparing immigrants and refugees. For each outcome, we then used ANCOVA models to compare the mean responses of immigrants vs. refugees on chosen outcomes. A priori, we included in the adjusted models patients’ age at immigration, education level (to account for differences in socioeconomic status between the two groups), and an indicator for clinic site. Two-tailed p-values less than or equal to 0.05 were considered statistically significant.

## Results

The socio-demographic characteristics of Cambodian Americans who came to the US as refugees or immigrants are compared in Table 1. There was not a significant age difference between the two groups, yet, there were multiple significant differences in several socio-demographic characteristics. Specifically, refugees were younger at age of entry (28.8 vs. 48.7 years old, p<0.001), less likely to be currently married or in a partnership (37.7% vs. 59.6%, p=0.002), less likely to be educated (74.0% vs. 61.2% less than high school education, p=0.02), more likely to be disabled (30.2 vs 2.0%, p <0.001), and more likely to be receiving support through a food stamps program (42.6% vs. 18.9%, p=0.02) compared to their immigrant counterparts.

The overview of the health profile comparing immigrants to refugees is presented in Table 2. The unadjusted mean and standard deviation for each group is shown on the left side of the table, and the mean difference for the estimated marginal means and associated F-statistic for the multivariable analysis (included age at entry of US, educational attainment, and clinic location as covariates) are shown in the two columns on the right side of the table. In general, the findings indicated that refugees reported poorer ratings of their health status for all eight domains compared to immigrants in the unadjusted models. In the adjusted models, on average refugees rated their physical functioning (Estimated marginal means [EMM] (Standard Error, SE)=56.1 (1.9) vs. 73.3 (1.9), p<0.001), role-limitations-physical health (EMM (SE)=47.0 (2.1) vs. 61.4 (3.4), p=0.002), and role limitations-emotional health (EMM (SE)=46.7 (2.2) vs. 59.6 (3.7), p=0.009) as poorer than the ratings provided by immigrants. Furthermore, refugees also rated their overall health as poorer, in both unadjusted and adjusted models (Means (SD)=18.2 (16.8) vs 21.7 (13.7), p<0.05; EMM (SE)=17.2 (1.2) vs. 24.0 (2.0), p=0.01). In terms of weight status, a large proportion (60.8%) was categorized as overweight or obese, with no significant difference by immigration status. Approximately one-third (27.4%) of the sample had been diagnosed with diabetes, with no significant difference in prevalence rate by immigration status in unadjusted models; however, in the adjusted model, compared with immigrants, refugees evidenced a higher proportion of diagnosed diabetes (EMM (SE)=13.4 (5.8) vs. 33.6 (3.5), p=0.009). Among all respondents, there were generally low rates of have been diagnosed by a medical provider with any heart condition (5.4%), however, slightly less than half of the sample had been diagnosed with hypertension (44.9%) or dyslipidemia (45.8%). As indicated in the adjusted analyses, there were significant differences between the immigrant and refugee participants in cardiovascular disease risk, with refugees having a greater prevalence of heart conditions (EMM (SE)= −0.9 (4.1) vs. 12.4 (2.5), p=0.01) and hypertension (EMM (SE)= 52.2 (4.0) vs. 30.2 (6.5), p=0.02).

In terms of health behaviors, alcohol consumption was low-- only 7.2% of the entire sample reported having had an alcoholic drink in the past 30 days, with no significant difference found between immigrants and refugees. Cambodian American refugees were more likely to report having lost more than $100 in a year due to gambling compared to their immigrant counterparts, in both unadjusted (Means (SD)= 29.4 (45.7) vs 9.2 (29.0), p<0.05) and adjusted (EMM (SE)=29.5 (3.4) vs. 9.0 (5.3), p=0.004) models. Approximately, 3.7% of the sample reported behaviors indicative of pathological gambling, with differences due to

immigration status only evidenced in the unadjusted model (Means (SD)= 5.6 (23.1) vs. 0.0 (0.0), $p<0.05$). Lastly, there were low levels of physical activity with only 36.1% of the sample reporting engaging in CDC recommended levels of physical activity (33.7% engaged in recommended levels of moderate physical activity and 6.5% engaged in recommended levels of vigorous physical activity), with refugees engaging in less physical activity than immigrants (only in the unadjusted models for moderate physical activity and CDC recommendation for total physical activity) .

Table 3 presents the results on healthcare experiences. Cambodian American refugees were less likely to report having difficulty speaking or understanding the provider due to language (Means (SD)= 2.0 (1.6) vs. 3.1 (1.7), $p<0.05$) and were more likely to report needing an interpreter (Means (SD)= 2.1 (1.6) vs. 3.4 (1.7), $p<0.05$) than Cambodian American immigrants, although this difference only remained significant for needing an interpreter in the adjusted model (EMM (SE)= 2.4 (0.1) vs. 2.9 (0.2), $p=0.03$). Overall, the respondents reported high levels of trust in their provider (sample mean (SD)=4.4 (0.5)) and high levels of receipt of high quality care (sample mean=4.0 (0.8)), with no significant differences based on immigration status in either unadjusted or adjusted models. In general, there were low levels of perceived discrimination in regard to respondents' English language proficiency, health insurance status, or racial/ethnic background. When comparing differences in perceived discrimination based on immigration status, refugees reported lower levels of perceived discrimination based on their English language ability relative to their counterparts, although this difference reached significance only in the adjusted model (EMM (SE)= 1.2 (0.1) vs. 1.5 (1.0), $p=0.01$).

## Discussion

As Cambodians arrived in the US, they often faced severe economic and social hardships that likely contributed to a high risk for developing poor behavioral and physical health. This study sought to examine the current general health profile and healthcare experiences of Cambodian Americans in the largest community of Cambodian Americans in the US, with a focus on the differences between immigrants and refugees.

The findings suggested that the Cambodian American refugee sample reported lower indicators of socioeconomic status, including education level and employment status. The 2005 American Community Survey showed a disparity in Cambodian American educational attainment with over half reported having less than a high school degree compared with 20% of the overall U.S. population,[38] and only 9% reported having a bachelor's degree compared with 15% of the overall U.S. population (U.S. Census Bureau, 2012). Interestingly, in both groups, the majority of the sample reported an average income less than $29,000, which is just above the federal poverty level for households of four (https://aspe.hhs.gov/poverty-guidelines). The refugees were significantly more likely to report being disabled and receiving government support in the form of food stamps. This difference likely reflects access to welfare benefits that were conferred to refugees who were permanently injured during the war, but may not have been as readily available to current immigrants.

In terms of their health profile, ratings of health-related quality of life were generally lower among refugees than among immigrants, but across both groups their scores were between 10-40 points lower than those reported on in other Asian ethnic subgroups, including Chinese Americans,[39, 40] and Vietnamese Americans.[41] This pattern of findings was also mirrored in ratings of self-rated health, with refugees providing the lower ratings, as well as scores being much lower than those reported by American Asians/Pacific Islanders, and similar-aged Californian adults more generally.[8] These results are concerning given that self-rated health, one of the most widely used measures in health research, is considered a predictor of mortality.[42, 43]

We recognize that there are varying perspectives on the cut-points for obesity among Asians; [44] however, given that the World Health Organization declined to set different cutoff points for Asians, and to be aligned with other studies, we used the CDC cut-off points. As such, more than half of the sample (60.8%) was categorized as overweight or obese, which is lower compared to 2011-2014 age-adjusted estimated of overweight/obesity for non-Hispanic white adults (68.5%), but higher compared to national estimates provided for Asian adults (40.3%).[45] Although the obesity epidemic is a top national policy concern, Asian Americans are often considered at being lower risk than other racial/ethnic groups. This may be, in part, due to work that has generally grouped Asian American ethnic subgroups into one homogeneous group and then compared this group to other racial/ethnic groups.[46] Studies that have disaggregated this data, however, present a different story.[7, 9] This study is one of the first, to the authors' knowledge, documenting BMI among a community sample of Cambodian Americans. Ancheta et al.[47] did find that Cambodian Americans had lower rates of obesity than other Asian American ethnic subgroups, however, this study was based on data from women only. Findings from this sample suggest that Cambodian Americans may be at higher risk relative to their Asian American counterparts.

Another poor health outcome in this sample was the high rate of type 2 diabetes (27.4%), particularly within the Cambodian refugee sample. Data from 2011-2014 age-adjusted population estimates for diabetes indicate that the prevalence rate for non-Hispanic whites and Asian American adults (age 20 and over) is 9.0% and 10.4%, respectively.[45] Similar to the trends in obesity, wide variation exists among Asian subgroups in terms of diabetes prevalence.[7] These results are consistent with other findings suggesting elevated risk of diabetes among Asian Americans[9] in comparison to their White counterparts, and mirror another study's high prevalence rate of diabetes (32.4%) in a sample of community-dwelling Cambodian Americans in Connecticut.[25] Another public health concern that emerged was the alarming high rates of hypertension (47.3%) and dyslipidemia (46.7%) in this sample, which is higher than population estimates for non-Hispanic white and Asian American adults (hypertension: 30.8% and 25%; hyperlipidemia: 27.8% and 26.0%, respectively).[45] These results mirror recent studies that found that Cambodian Americans were at a disproportionately higher risk of hypertension and hyperlipidemia than the general population.[21, 25, 26] Another study that assessed cardiovascular disease risk among Asian American women found that Cambodian and Vietnamese American women had comparable rates of unhealthy lipids and hypertension as the Filipinas, but all three ethnic subgroups had higher rates compared with Chinese American women.[47]

The health behaviors we examined yielded mixed findings. For example, we found that self-reported alcohol consumption was low within this sample. Although this could be due to a reluctance to self-disclose alcohol use, it likely supports another study's claim that problematic drinking within the Cambodian American community has been overstated.[34] Furthermore, recent California population estimates of binge drinking behavior suggest that its prevalence is generally low among South East Asian Americans.[48] In addition, we examined problematic gambling behavior, which has been previously documented as a risky health behavior within the Cambodian American community[36] and has been associated with adverse health behaviors and outcomes such as substance abuse and suicide.[49] Gambling is common among South-East Asian refugees, with a lifetime prevalence of pathological gaming estimated at 59 percent among refugees from Laos, Cambodia, and Vietnam.[50] More recent work with a representative sample of Cambodian American estimates that the prevalence rate is much lower, with 13.9% of participants meeting screening criteria for lifetime disordered gambling.[36] In our study, although the rate was comparatively low, the level of pathological gambling was twice that of the national average,[51] suggesting that there is a disproportionately higher rate within this community. Lastly, we assessed levels of physical activity, another largely understudied topic among Asian Americans[52] and found discouraging results. In this sample of Cambodian Americans, refugee and immigrant respondents overwhelmingly fell short of meeting the recommended guidelines for physical activity (36.1% compared with 51.1% of non-Hispanic White Americans and 51.4% of Asian Americans).[45] These results are concerning considering the role physical activity can play in the prevention and treatment of chronic diseases. However, the low levels of physical activity in the current samples differ from another study by Taylor and colleagues[53] that reported that Cambodian Americans were largely adherent with the national physical activity guidelines for adults.[54] These varying results could be rooted in the differences in the samples; the prior study[53] was based in different geographic locations (including Central and Northern California and the Pacific Northwest) and the sample was, on average, younger and had higher levels of education than the current study's respondents.

Lastly, we examined dimensions of the patient-provider relationship and perceived quality of care. The results yielded high levels of satisfaction. Respondents overwhelmingly expressed positive sentiments in regard to their trust in their provider and ratings of overall quality of care. This finding is important, as part of the Triple Aim of the Affordable Care Act is to improve the patient experience of care (including quality and satisfaction). Furthermore, there is evidence that patient experiences of care are related to measures of technical quality of care.[55]

These findings depart slightly from the existing body of research, however, which typically reports lower levels of trust and perceived lower quality of care among racial and ethnic minorities, compared with non-Hispanic white.[3, 56] The setting for this study likely had a strong influence on reported findings. Specifically, the data were collected from community medical settings that are known for serving the Cambodian American community. As such, there are institutional factors available at these medical settings, including bilingual and bicultural staff, culturally-relevant health resources, and support for behavioral health, which likely influenced the positive sentiments toward provider care. In past studies, the quality of the patient-provider interpersonal relationship has been shown to be associated with patient

ratings' of their overall quality of care, including satisfaction with healthcare experiences.[14] These results are promising given a recent study documenting that trust in the Western healthcare system was associated with various health outcomes among Cambodian Americans, including positive health behaviors, self-reported disease and engagement in the healthcare system,[25] and suggests important institutional resources that can be added into the medical system to improve the provision of culturally-competent care.

Moreover, there were low levels of perceived discrimination among all three indicators. Over 90% of the sample reported "never" or "rarely" experiencing these forms of discrimination, although Cambodian American immigrants reported significantly higher ratings of discrimination based on English-language ability compared to Cambodian American refugees. These findings are noteworthy considering the body of literature documenting how perceived discrimination may be a contributing factor to racial and ethnic health disparities, and can adversely impact engagement in health promoting behaviors,[57] medication adherence, perceived quality of care and medical follow-up.[58] There is a growing body of work examining the relationship between discrimination and health among Asian Americans more specifically,[59–61] which has found that perceived discrimination is associated with lower rates of mental health care utilization among Asian Americans,[62] as well as higher rates of informal service utilization among Chinese Americans.[61]

There are limitations to this study that merit attention. First, these results are based on data collected from a convenience sample of patients seeking medical care. Therefore, it is likely that our findings overestimate the high burden of chronic disease and limit the generalizability of our findings, both compared to the larger Cambodian American population within and outside of Long Beach, as well as to the larger US population. Second, these results are cross-sectional and descriptive, and thereby do not examine any associations and/or trends over time that could help explain the health outcomes and healthcare experiences of this population.

## Conclusion

This study examined the health profile and healthcare experiences among the largest Cambodian community in the US. The results suggested that although the majority of Cambodian Americans reported positive perceptions of their experience with the healthcare system, their health outcomes and health behaviors were far from optimal and placed them at risk for developing a myriad of chronic diseases. There is a need for more health promotion research and programs differentiating the various Asian American ethnic subgroups, particularly in light of the heterogeneity within their pre and post immigration circumstances that might make some people more vulnerable to poor health outcomes than others.

## References

1. Huang K- Y, Calzada E, Cheng S, et al. Physical and mental health disparities among young children of Asian immigrants. The Journal of pediatrics. 2012;160(2):331–336. e331. [PubMed: 21907351]

2. Ibaraki AY, Hall GCN, Sabin JA. Asian American cancer disparities: The potential effects of model minority health stereotypes. Asian American Journal of Psychology. 2014;5(1):75.

3. Kang S, Tucker CM, Wippold GM, et al. Associations among perceived provider cultural sensitivity, trust in provider, and treatment adherence among predominantly low-income Asian American patients. Asian American Journal of Psychology. 2016;7(4):295.

4. Chen MS, Jr., Hawks BL A debunking of the myth of healthy Asian Americans and Pacific Islanders. Am J Health Promot. 1995;9(4):261–268. [PubMed: 10150729]

5. Holland AT, Wong EC, Lauderdale DS, et al. Spectrum of cardiovascular diseases in Asian-American racial/ethnic subgroups. Ann Epidemiol. 2011;21(8):608–614. [PubMed: 21737048]

6. Panapasa SV, Crabbe KM, Kaholokula JK. Efficacy of Federal Data: Revised Office of Management and Budget Standard for Native Hawaiian and Other Pacific Islanders Examined. AAPI Nexus. 2011;9(1–2):212–220. [PubMed: 25360070]

7. Staimez LR, Weber MB, Narayan K, et al. A systematic review of overweight, obesity, and type 2 diabetes among Asian American subgroups. Current diabetes reviews. 2013;9(4):312–331. [PubMed: 23590534]

8. Wong EC, Marshall GN, Schell TL, et al. The unusually poor physical health status of Cambodian refugees two decades after resettlement. Journal of Immigrant and Minority Health. 2011;13(5): 876–882. [PubMed: 20878473]

9. Yi V, Museus SD. Model Minority Myth. The Wiley Blackwell Encyclopedia of Race, Ethnicity, and Nationalism. 2015.

10. Holland AT, Palaniappan LP. Problems with the collection and interpretation of Asian-American health data: omission, aggregation, and extrapolation. Ann Epidemiol. 2012;22(6):397–405. [PubMed: 22625997]

11. Taylor VM, Bastani R, Burke N, et al. Factors associated with hepatitis B testing among Cambodian American men and women. Journal of immigrant and minority health. 2012;14(1):30–38. [PubMed: 22002705]

12. Marshall GN, Schell TL, Elliott MN, et al. Mental health of Cambodian refugees 2 decades after resettlement in the United States. JAMA. 2005;294(5):571–579. [PubMed: 16077051]

13. Chheang D, Connolly EJ. A Review of the Historical, Criminological, and Theoretical Understandings of the Cambodian American Population: A Call for More Comprehensive Research. International Journal of Offender Therapy and Comparative Criminology. 2014:1–26.

14. Sucheng C Cambodians in the United States: Refugees, Immigrants and American Ethnic Minority. . Oxford Research Encyclopedia of American History 2015.

15. U. S. Census Bureau. American FactFinder: ASIAN ALONE OR IN ANY COMBINATION BY SELECTED GROUPS Available: https://factfinder.census.gov/faces/tableservices/jsf/pages/productview.xhtml?src=bkmk.

16. Pew Research Center. U.S. Cambodian population living in poverty, 2015 Available: http://www.pewsocialtrends.org/chart/u-s-cambodian-population-living-in-poverty/. Accessed November 11, 2017.

17. Kwon SA. Deporting Cambodian refugees: Youth activism, state reform, and imperial statecraft. Positions: East Asia Cultures Critique. 2012;20:737–762.

18. Pew Research Center SaDT. U.S. Hmong population living in poverty, 2015 Available: http://www.pewsocialtrends.org/chart/u-s-hmong-population-living-in-poverty/. Accessed March 1,, 2018.

19. Quintiliani K Cambodian refugee families in the shadows of welfare reform. Journal of Immigrant & Refugee Studies. 2009;7(2):129–158.

20. Adebiyi A, Cheng A, Kim J, et al. State of Cambodia Town. 2013.

21. Berthold SM, Kong S, Mollica RF, et al. Comorbid mental and physical health and health access in Cambodian refugees in the US. J Community Health. 2014;39(6):1045–1052. [PubMed: 24651944]

22. Kuoch T, Scully M, Tan HK, et al. The National Cambodian American Town Hall Meeting: A Community Dialogue on" Eat, Walk, Sleep" for Health. Progress in community health partnerships: research, education, and action. 2014;8(4):541–547.

23. Marshall GN, Berthold SM, Schell TL, et al. Rates and correlates of seeking mental health services among Cambodian refugees. Am J Public Health. 2006;96(10):1829–1835. [PubMed: 17008580]
24. Thikeo M, Florin P, Ng C. Help Seeking Attitudes Among Cambodian and Laotian Refugees: Implications for Public Mental Health Approaches. Journal of immigrant and minority health. 2015;17(6):1679–1686. [PubMed: 25672994]
25. Wagner J, Kuoch T, Tan HK, et al. Health beliefs about chronic disease and its treatment among aging Cambodian Americans. Journal of cross-cultural gerontology. 2013;28(4):481–489. [PubMed: 24122524]
26. Marshall GN, Schell TL, Wong EC, et al. Diabetes and Cardiovascular Disease Risk in Cambodian Refugees. J Immigr Minor Health. 2016;18(1):110–117. [PubMed: 25651882]
27. Collins RL, Haas A, Haviland AM, et al. What Matters Most to Whom: Racial, Ethnic, and Language Differences in the Health Care Experiences Most Important to Patients. Med Care. 2017;55(11):940–947. [PubMed: 28930888]
28. Services UDoHaH. HHS action plan to reduce racial and ethnic health disparities: a nation free of disparities in health and health care. 2011.
29. Biegler K, Mollica R, Sim SE, et al. Rationale and study protocol for a multi-component Health Information Technology (HIT) screening tool for depression and post-traumatic stress disorder in the primary care setting. Contemporary Clinical Trials. 2016;50:66–76. [PubMed: 27394385]
30. Ware JE, Jr., Gandek B Overview of the SF-36 Health Survey and the International Quality of Life Assessment (IQOLA) Project. J Clin Epidemiol. 1998;51(11):903–912. [PubMed: 9817107]
31. Ware JE, Jr., Sherbourne CD. The MOS 36-item short-form health survey (SF-36). I. Conceptual framework and item selection. Med Care. 1992;30(6):473–483. [PubMed: 1593914]
32. Prevention CfDCa. About Adult BMI. Available: www.cdc.gov/healthyweight/assessing/bmi/adult_bmi/index.html. Accessed January 10 2017.
33. Centers for Disease Control and Prevention. Physical Activity Basics Available: https://www.cdc.gov/physicalactivity/basics/index.htm. Accessed November 11, 2017.
34. D'Amico EJ, Schell TL, Marshall GN, et al. Problem drinking among Cambodian refugees in the United States: how big of a problem is it? Journal of studies on alcohol and drugs. 2007;68(1):11–17. [PubMed: 17149513]
35. Lesieur HR, Blume SB. The South Oaks Gambling Screen (SOGS): A new instrument for the identification of pathological gamblers. AJ Psychiatry. 1987;144(9).
36. Marshall GN, Elliott MN, Schell TL. Prevalence and correlates of lifetime disordered gambling in Cambodian refugees residing in Long Beach, CA. Journal of immigrant and minority health. 2009;11(1):35–40. [PubMed: 17922190]
37. Thom DH, Campbell B. Patient-physician trust: an exploratory study. J Fam Pract. 1997;44(2):169–176. [PubMed: 9040520]
38. Ngo B, Lee SJ. Complicating the image of model minority success: A review of Southeast Asian American education. . Review of Educational Research. 2007;77:415–453.
39. Chang D, Chun C, Takeuchi D, et al. SF-36 health surveys: test of data quality, scaling assumptions, and reliability in a sample of Chinese Americans. Med Care. 2000;38:542–548. [PubMed: 10800980]
40. Wyatt LC, Trinh-Shevrin C, Islam NS, et al. Health-related quality of life and health behaviors in a population-based sample of older, foreign-born, Chinese American adults living in New York City. Health Educ Behav. 2014;41(1_suppl):98S–107S. [PubMed: 25274716]
41. Ngo-Metzger Q, Sorkin DH, Mangione CM, et al. Evaluating the SF-36 health survey (version 2) in older Vietnamese Americans. J Aging Health. 2008;20(4):420–436. [PubMed: 18381886]
42. Jylhä M What is self-rated health and why does it predict mortality? Towards a unified conceptual model. Soc Sci Med. 2009;69(3):307–316. [PubMed: 19520474]
43. Subramanian S, Kawachi I, Kennedy BP. Does the state you live in make a difference? Multilevel analysis of self-rated health in the US. Soc Sci Med. 2001;53(1):9–19. [PubMed: 11380164]
44. Consultation WHOE. Appropriate body-mass index for Asian populations and its implications for policy and intervention strategies. Lancet. 2004;363(9403):157–163. [PubMed: 14726171]
45. Health, United States, 2016: With Chartbook on Long-term Trends in Health. 2017.

46. Park Y, Wang S, Kitahara CM, et al. Body mass index and risk of death in Asian Americans. Am J Public Health. 2014;104(3):520–525. [PubMed: 24432919]
47. Ancheta IB, Carlson JM, Battie CA, et al. One size does not fit all: cardiovascular health disparities as a function of ethnicity in Asian-American women. Appl Nurs Res. 2015;28(2):99–105. [PubMed: 25069635]
48. Banta JE, Mukaire PE, Haviland MG. Binge drinking by gender and race/ethnicity among California adults, 2007/2009. Am J Drug Alcohol Abuse. 2014;40(2):95–102. [PubMed: 24521071]
49. Wilson AN, Salas-Wright CP, Vaughn MG, et al. Gambling prevalence rates among immigrants: a multigenerational examination. Addict Behav. 2015;42:79–85. [PubMed: 25462658]
50. Petry NM, Armentano C, Kuoch T, et al. Gambling participation and problems among South East Asian refugees to the United States. Psychiatr Serv. 2003;54(8):1142–1148. [PubMed: 12883143]
51. Luczak SE, Khoddam R, Yu S, et al. Review: Prevalence and co-occurrence of addictions in US ethnic/racial groups: Implications for genetic research. Am J Addict. 2017;26(5):424–436. [PubMed: 27759944]
52. Kao D, Gulati AC, Lee RE. Physical Activity Among Asian American Adults in Houston, Texas: Data from the Health of Houston Survey 2010. Journal of immigrant and minority health. 2016;18(6):1470–1481. [PubMed: 26343049]
53. Taylor VM, Liu Q, Yasui Y, et al. Physical activity among Cambodian Americans: An exploratory study. J Community Health. 2012;37(5):1040–1048. [PubMed: 22183889]
54. Health UDo, Services H. US Department of Health and Human Services. 2008 physical activity guidelines for Americans. 2014.
55. Isaac T, Zaslavsky AM, Cleary PD, et al. The relationship between patients' perception of care and measures of hospital quality and safety. Health Serv Res. 2010;45(4):1024–1040. [PubMed: 20528990]
56. Sorkin DH, Ngo-Metzger Q, De Alba I. Racial/ethnic discrimination in health care: impact on perceived quality of care. J Gen Intern Med. 2010;25(5):390–396. [PubMed: 20146022]
57. Abramson CM, Hashemi M, Sánchez-Jankowski M. Perceived discrimination in US healthcare: charting the effects of key social characteristics within and across racial groups. Preventive medicine reports. 2015;2:615–621. [PubMed: 26844127]
58. Sorkin DH, Ngo-Metzger Q, De Alba I. Racial/ethnic discrimination in health care: impact on perceived quality of care. J Gen Intern Med. 2010;25(5):390–396. [PubMed: 20146022]
59. Gee GC, Ro A, Shariff-Marco S, et al. Racial discrimination and health among Asian Americans: evidence, assessment, and directions for future research. Epidemiol Rev. 2009:mxp009.
60. Gee GC, Spencer MS, Chen J, et al. A nationwide study of discrimination and chronic health conditions among Asian Americans. Am J Public Health. 2007;97(7):1275–1282. [PubMed: 17538055]
61. Spencer MS, Chen J, Gee GC, et al. Discrimination and mental health–related service use in a national study of Asian Americans. Am J Public Health. 2010;100(12):2410–2417. [PubMed: 20299649]
62. Yip T, Gee GC, Takeuchi DT. Racial discrimination and psychological distress: the impact of ethnic identity and age among immigrant and United States-born Asian adults. Dev Psychol. 2008;44(3):787. [PubMed: 18473644]

**Table 1.**

Sociodemographic Characteristics of Cambodian Americans (N=308)

| | Cambodian American | | |
|---|---|---|---|
| | **Refugee (N=209)** | **Immigrant (N=99)** | |
| | **Mean (S.D)** | **Mean (S.D)** | **t [95% Confidence Interval of Difference]** |
| **Current Age,** years | 59.1 (10.4) | 56.5 (13.0) | 1.7 [−5.6, 0.4] |
| **Age at US Entry,** years | 28.8 (10.2) | 48.7 (12.6) | −13.6 [17.06, 22.8] |
| **Household size,** average number of people | 3.7 (3.1) | 4.2 (3.2) | −1.9 [−.007, 1.0] |
| | **%** | **%** | **$\chi^2$, p-value** |
| **Gender,** % Female | 69.5% | 66.7 % | .23, =0.63 |
| **Marital Status,** % | | | 14.6, =0.002 |
| Married/Marital-like Relationship | 37.7 | 59.6 | |
| Divorced/Separated | 32.4 | 16.2 | |
| Widowed | 19.8 | 17.2 | |
| Never Married | 10.1 | 7.1 | |
| **Education Level,** % Less than High School | 74.0 | 61.2 | 5.2, =0.02 |
| **Household Income,** % Less than $29,000 | 89.5 | 94.3 | 2.2, =0.16 |
| **Employment Status,** % | | | |
| Full-time | 3.4 | 10.2 | 38.7, =0.000 |
| Part-time | 11.5 | 20.4 | |
| Homemaker/keeping house/retired | 46.2 | 51.1 | |
| Not Employed, looking for work | 7.7 | 13.3 | |
| Student | 0.5 | 1.0 | |
| Disabled | 30.2 | 2.0 | |
| Other | 0.5 | 2.0 | |
| **Buddhist Religious Affiliation,** % yes | 82.7 | 95.0 | 8.6, =0.003 |
| **Receive Food Stamps Program,** % yes | 42.6 | 18.9 | 5.3, =0.02 |

Note. Removed the 22 Cambodian Americans that were born in the U.S. from all analyses.

**Table 2.**

Health Profile of Cambodian Americans (N=308)

| | Cambodian American | | | |
|---|---|---|---|---|
| | Refugee (N=209) Unadjusted Mean (SD) | Immigrant (N=99) Unadjusted Mean (SD) | Mean Difference of Estimated Marginal Means (SE) † | F (df), p-value‡ |
| **Health Profile:** | | | | |
| **Quality of Life,** 0=worst; 100=best | | | | |
| *Physical Functioning* | 58.6 (25.7) * | 68.2 (23.8) | −17.2 (4.3) | 16.2 (1,300), <0.001 |
| *Bodily Pain* | 48.3 (26.7) * | 57.3 (25.9) | −6.3 (4.4) | 2.0 (1,300), =0.16 |
| *Role limitations-physical health* | 47.3 (27.6) * | 60.7 (26.0) | −14.4 (4.5) | 10.0 (1, 298), =0.002 |
| *Role limitations- personal/emotional* | 47.3 (29.5) * | 58.5 (28.2) | −12.9 (4.9) | 6.9 (1, 297), =0.009 |
| *Emotional well-being* | 48.7 (23.0) * | 57.9 (20.6) | −1.8 (3.8) | 0.2 (1, 298), 0.63 |
| *Social functioning* | 50.8 (26.2) * | 63.8 (25.7) | −5.2 (4.5) | 3.8 (1,300), =0.05 |
| *Energy/fatigue* | 41.8 (20.0) * | 49.7 (18.0) | −6.1 (3.3) | 2.4 (1,299), =0.12 |
| *General health perceptions* | 28.6 (21.0) * | 38.3 (21.9) | −6.8 (3.6) | 2.9 (1,303), =0.09 |
| **Self-Rated Health,** 0=worst; 100=best | 18.2 (16.8) * | 21.7 (13.7) | −6.8 (2.5) | 6.3 (1, 300), =0.01 |
| **Weight Status,** % overweight/obese | 63.7(48.2) | 54.4 (50.1) | 12.7 (8.9) | 2.0 (1, 277), =0.16 |
| **Diabetes,** % yes | 27.8 (45.0) | 25.5 (43.8) | 20.2 (7.7) | 6.9 (1,301), =0.009 |
| **Cardiovascular Disease Risk,** % yes | | | | |
| *Heart Condition* | 11.0 (37.0) * | 2.0 (14.1) | 13.3 (5.5) | 5.9 (1, 303), =0.02 |
| *Hypertension* | 47.4 (50.1) | 40.4 (49.3) | 22.2 (8.6) | 6.5 (1, 303), =0.01 |
| *Dyslipidemia* | 47.3 (50.1) | 42.4 (49.7) | 12.7 (8.7) | 2.1 (1, 303), =0.15 |
| **Health Behavior Profile:** | | | | |
| **Alcohol Consumption,** % yes | | | | |
| *Had a drink in the past 30 days* | 8.3 (27.7) | 5.1 (22.0) | −1.5 (4.6) | .11 (1,298), =0.74 |
| **Gambling Activity,** % yes | | | | |
| *Lost more than $100 in a year because of gambling* | 29.4 (45.7) * | 9.2 (29.0) | 20.5 (7.2) | 8.2 (1, 290), =0.004 |
| *Pathological gambling* | 5.6 (23.1) * | 0.0 (0.0) | 3.9 (3.3) | 1.4 (1, 289), p=0.24 |
| **Physical Activity,** % yes | | | | |

| | Cambodian American | | | |
|---|---|---|---|---|
| | Refugee (N=209) | Immigrant (N=99) | | |
| | Unadjusted Mean (SD) | Unadjusted Mean (SD) | Mean Difference of Estimated Marginal Means (SE) † | F (df), p-value‡ |
| *150 minutes per week of moderate physical activity* | 27.7 (44.8) * | 44.3 (50.0) | 2.6 (8.1) | .09 (1, 301), =0.76 |
| *75 minutes per week of vigorous physical activity* | 5.3 (22.5) | 8.1 (27.4) | 1.3 (4.2) | .09 (1, 301), =0.76 |
| *CDC recommendation for physical activity* | 30.7 (46.3) * | 45.4 (50.0) | 5.9 (8.3) | .51 (1, 297), =0.48 |

† The mean difference between the estimated marginal means for immigration status (immigrant vs. refugee) for each outcome was calculated using an ANCOVA model that included age at immigration to US, educational attainment, and clinic location at which patient received care as covariates.

‡ F-statistic for the comparison of Cambodian Americans categorized as refugees vs. immigrants.

* $p \leq 0.05$

**Table 3.**

Patient-Provider Relationship and Quality of Care of Cambodian Americans (N=308)

| | Cambodian American | | | |
|---|---|---|---|---|
| | Refugee (N=209) | Immigrant (N=99) | | |
| | Unadjusted Mean (SD) | Unadjusted Mean (SD) | Mean Difference of Estimated Marginal Means (SE)† | F (df), p-value‡ |
| **Difficulty speaking or understanding provider because of language** | 2.0 (1.6) * | 3.1 (1.7) | −0.4 (0.2) | 2.9 (1, 298), =0.09 |
| **Need for interpreter** | 2.1 (1.6) * | 3.4 (1.7) | −0.5 (0.2) | 4.6 (1, 296), =0.03 |
| **Trust in healthcare provider** | 4.4 (0.5) | 4.3 (0.6) | 0.1 (0.9) | 2.3 (1, 299), =0.13 |
| **Quality of care** | 4.1 (0.7) | 4.0 (0.8) | −0.1 (0.1) | 0.3 (1, 300), = 0.56 |
| **Perceived Discrimination** | | | | |
| *Ability to speak English* | 1.2 (0.7) | 1.4 (0.8) | −0.3 (0.1) | 6.2 (1, 300), = 0.01 |
| *Health insurance status* | 1.2 (0.6) | 1.2 (0.5) | −0.1 (0.1) | 0.4 (1, 300), =0.52 |
| *Racial/ethnic background* | 1.1 (0.6) | 1.2 (0.6) | −0.2 (0.1) | 2.3 (1,300), =0.09 |

† The mean difference between the estimated marginal means for immigration status (immigrant vs. refugee) for each outcome was calculated using an ANCOVA model that included age at immigration to US, educational attainment, and clinic location at which patient received care as covariates.

‡ F-statistic for the comparison of Cambodian Americans categorized as refugees vs. immigrants.

* $p \leq 0.05$