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## The Association of Perceived Discrimination and Depressive Symptoms Among Chinese, Korean, and Vietnamese Americans

Victoria Chau<sup>1</sup>, Janice V. Bowie<sup>1</sup>, and Hee-Soon Juon<sup>1,2</sup>

<sup>1</sup>The Johns Hopkins Bloomberg School of Public Health, Department of Health, Behavior & Society, 624 North Broadway Street, Baltimore, Maryland. 21205. USA

<sup>2</sup>Thomas Jefferson University, Division of Population Science, Department of Medical Oncology, Benjamin Franklin Building, 834 Chestnut St. Suite 311, Philadelphia, PA 19107. USA (present address for Hee-Soon Juon)

### Abstract

**Objectives**—Few studies have investigated ethnic differences in discrimination and depressive symptoms, and the link between them among foreign-born Asian Americans. This study identifies if depressive symptoms and perceived discrimination differ by Asian ethnicity, and if perceived discrimination is associated with depressive symptoms among foreign-born Chinese, Korean, and Vietnamese Americans.

**Methods**—This study uses data from the Asian American Liver Cancer Prevention Program ( $N=600$ ). Using non-probability sampling, foreign-born Asian American adults (58% female,  $M_{age} = 47.3$  years,  $SD = 11.82$ ) were recruited from the community in the Baltimore-Washington Metropolitan Area. Perceived discrimination was defined using everyday and major discrimination scales; the Centers for Epidemiological Studies–Depression (CES-D) scale defined the outcome of depressive symptoms. Multiple logistic regressions were conducted to determine if this association exists.

**Results**—A high prevalence of depressive symptoms (one-third to one-fifth per ethnicity) and ethnic differences between foreign-born Chinese, Korean, and Vietnamese Americans were found; increased perceived discrimination was associated with worse depressive symptomology. Those with “high” and “mild discrimination” had greater odds of being depressed than those who had never experienced discrimination; those with “unfair treatment” had greater odds of being depressed than those who had none. Major experiences of discrimination were less common and less likely associated with depressive symptoms than everyday experiences.

**Conclusions**—Foreign-born Asian Americans experience substantial discrimination and depressive symptoms. Future studies should stratify by Asian ethnicity and examine the differences between minor and major experiences of discrimination to provide appropriate mental health prevention and treatment for this population.

## Keywords

foreign-born Asian; depressive symptoms; mental health; perceived discrimination; ethnic differences

There has been some research on the Asian American population specific to discrimination and its association to poorer mental health outcomes (Gee, Ro, Shariff-Marco, & Chae, 2009); however there is a need to further understand this association specifically focused on foreign-born Asian Americans using ethnic and community-based data. Trends in data for Asian Americans overall have shown that much like the general population, racial discrimination is linked to poorer mental health (Lee & Ahn, 2011; Williams, Neighbors, & Jackson, 2003), including increased depression and anxiety (Gee, Spencer, Chen, Yip, & Takeuchi, 2007; Lee & Ahn, 2011), negative affect (Yoo & Lee, 2008), decreased sense of coherence (Ying, Lee, & Tsai, 2000), life satisfaction (Yoo & Lee, 2005) and self-esteem (Barry & Grilo, 2003; Lee, 2003). Also, women reach poorer mental health at a lower threshold of perceived discrimination than men (Hahm, Ozonoff, Gaumond, & Sue, 2010). Additionally, research on the general adult population has shown that everyday and major experiences of discrimination are both associated with depression, with the association being greater for minor (i.e., chronic strain) compared to major experiences (i.e., life events) (Kessler, Mickelson, & Williams, 1999). Thus, there is a need to understand if different types of discrimination are associated with different levels of mental health outcomes specific to the foreign-born Asian Americans. Presently, we focus on foreign-born Chinese, Korean, and Vietnamese Americans, three of the most populous Asian ethnic groups in the U.S, and provide ethnic specific information on these groups where data were available.

## Foreign-born Asian Americans

Foreign-born Asian Americans have a history of discrimination in the U.S. and continue to significantly contribute to the demographic shifts in the U.S. towards a majority-minority population, leading to the need to understand if racial discrimination due to one's foreign-born status affects one's mental health. In the U.S. prior to 1965, Asians were discriminated against by law (University of Washington-Bothell, 2007). Generally, overt racial discrimination has lessened over time. Until recently, Asian immigration catapulted in the U.S. (Pew Research Center, 2015), particularly during the first decade of the 21<sup>st</sup> century (U.S. Census Bureau, 2012b). Both Korean and Vietnamese groups arrived in recent decades with 95 percent of Korean immigrants arriving after 1965 (Min, 2011) and most Vietnamese immigrants arriving after 1975 as family of or refugees of war (Valverde, 2012). Two-thirds of all Asian Americans are immigrants (Ramakrishnan & Ahmad, 2014), making them the fastest growing minority population in the U.S. (U.S. Census Bureau, 2012a).

Asian Americans consist of numerous culturally and linguistically diverse ethnicities (Zong & Batalova, 2016), each with different reasons for immigrating. When and why Asian ethnic groups immigrate has implications for their mental health (Foster, 2001). For example, forced migrants, such as some Vietnamese Americans, experience Post-Traumatic Stress Disorder (PTSD) due to their immigration experiences as war refugees (Rasmussen, Crager, Baser, Chu, & Gany, 2012), while voluntary migrants (e.g., Chinese and Korean immigrants

that come for education and employment) may not. Among Asian immigrants, culture and language shock compounds stress (Pumariega, Rothe, & Pumariega, 2005); nearly half are Limited English Proficient (LEP) (Zong & Batalova, 2016). Because Asian immigrants can be difficult to access due to cultural and language barriers (Lee et al., 2010; U.S. Census Bureau, 2014), studies that use a community-engaged approach and culturally and linguistically appropriate materials allow for better recruitment and likely more valid responses. Thus, more community-based studies may be warranted to examine the association between perceived discrimination and mental health among foreign-born Asian Americans.

Past research indicates that foreign-born Asian Americans report more discrimination than U.S.-born Asian Americans and that discrimination is associated with distress (Yip, Gee, & Takeuchi, 2008). Additionally, stronger ethnic identity, which is often used to describe those who are less acculturated or who have more recently immigrated, was associated with less distress compared to those with weaker ethnic identity (Yip et al., 2008). Using national data, the prevalence of discrimination by specific ethnic groups varies from 38% of Vietnamese to 61% of Chinese Americans, and nearly two-thirds of Asian Americans when aggregated, report perceived discrimination (Chae et al., 2008). Other studies also show nearly a 25% or more variation in reported discrimination dependent on Asian ethnicity (Gee & Ro, 2009; Brown, Matthews, Bromberger, & Chang, 2006); fewer Vietnamese Americans perceive discrimination compared to other Asian ethnicities (Gee & Ro, 2009). Greater length of residence in the U.S. is also associated with increased perceived discrimination among Asian immigrants (Goto, Gee, & Takeuchi, 2002).

## Understanding Mental Health Data on Asian Americans

Mixed results on the mental health of Asian Americans emerge depending on how the term “mental health” is conceptualized, which data sources are applied, and which instruments are used for data collection. National and community-based studies often capture mental health in different ways; national studies often report on presence of *mental illness* (the term used to describe clinically diagnosable mental disorders) whereas community-based studies often describe *mental health* (the broader term used to describe the state of mental well-being and inclusive of mental illness). The National Latino and Asian American Study (NLAAS) is commonly used to inform on *mental illness* among Asian Americans, whereas community-based studies often inform on *mental health* specific to a community. NLAAS data indicate that when compared to other racial and ethnic groups, Asian Americans have lower rates of mental illness, such as Major Depressive Episode (MDE) (Jackson et al., 2011; Takeuchi et al. 2007), suggesting better mental health than other races/ethnicities. However, many community-based studies use self-report scales such as the Centers for Epidemiologic Studies-Depression Scale (CES-D) and report poor mental health such as high depression among Asian Americans (Cho, Nam, & Suh, 1998; Hurh & Kim, 1988; Kuo, 1984; Kuo & Tsai, 1986; Tran et al., 2007). Kuo’s study of depression (1984) among Chinese, Korean, Japanese, and Filipino Americans, conflicts with the notion that Asians have lower prevalence estimates of depression when compared to other races/ethnicities; aggregated, Asians score slightly higher on the CES-D compared to whites, and disaggregated, Korean Americans score higher than Chinese, Japanese, and Filipino

Americans. Furthermore, a recent meta-analysis indicates that the pooled prevalence of depression for Korean Americans (33%) was high and twice of Chinese Americans (15.7%) (Kim, Park, Storr, Tran, & Juon, 2015). These community-based studies highlight that disaggregation by Asian ethnicity is crucial to providing details that are masked when aggregation occurs nationally and can add to the broader literature on Asian Americans.

## Biopsychosocial Model and the Stress Process Theory

In this study, the biopsychosocial model and the stress process theory informed our primary hypothesis that an association exists between perceived discrimination (the stressor) and depressive symptoms (the manifestation of stress) among foreign-born Asian Americans. The biopsychosocial model suggests that discrimination can act as a life stressor in which biological, psychological, and social stress responses experienced by an individual are associated with one's health (Clark, Anderson, Clark, & Williams, 1999; Williams & Mohammed, 2009). Consistent with the stress process theory (Pearlin, 1989), we theorize that experiences of discrimination can be a source of stress as a chronic strain or a life event, which contribute to a manifestation of stress (depressive symptoms). Perceived discrimination as a chronic strain equates to everyday (minor) discrimination, while as a life event it equates to major experiences of discrimination. Typically, these two types of perceived discrimination are captured using different instruments and questions. For instance, daily episodes of being treated with less courtesy than other people is an example of everyday and minor (i.e., chronic strain) perceived discrimination, while being unfairly fired is an example of a major experience of discrimination (i.e., life event) (Williams, Yu, Jackson, & Anderson, 1997). Past research has indicated that everyday experiences are more prevalent than major experiences of discrimination (Kessler et al., 1999).

The present study uses a community-based foreign-born sample of three of the five most populous Asian ethnicities in the U.S., Chinese, Korean, and Vietnamese Americans (U.S. Census Bureau, 2012b) to identify if perceived discrimination is associated with depressive symptoms among foreign-born Asian Americans (when aggregated and disaggregated by Asian ethnicity), and if differences exist by type of discrimination. To achieve this, we first estimate the prevalence of perceived discrimination and depressive symptoms.

Informed by past literature, three sets of hypotheses are described. First, we hypothesize that depressive symptoms are substantial (more than a quarter of the sample) among the total sample, and Korean Americans exhibit the greatest prevalence of depressive symptoms of the ethnicities (Kim et al., 2015). Secondly, we hypothesize that perceived discrimination is high for everyday discrimination (more than 50% of the sample), and Vietnamese Americans experience the least perceived discrimination because: a) length of residence in the U.S. is the shortest of the three ethnicities; and b) have reported lower perceived discrimination than other Asian ethnicities in past research (Chae et al., 2008; Gee & Ro, 2009). Our secondary hypothesis related to the prevalence of discrimination is that the prevalence will be lower for major compared to minor experiences of discrimination (Kessler et al., 1999). Thirdly, we hypothesize that increased perceived discrimination is associated with increased depressive symptoms among the total sample, and that the strength of association is the smallest for Vietnamese Americans. Resiliency gained from the war and past trauma experienced by

Vietnamese Americans may influence their perception, where any perceived discrimination felt in the U.S. may never be as negative as pre-migration experiences. Also, as the most recently immigrated ethnic group, this hypothesis aligns with past research that those with greater ethnic identity have a smaller magnitude association between discrimination and distress (Yip et al., 2008). Our secondary hypothesis related to the association is that the magnitude of this association is lower for major than minor experiences of discrimination (Kessler et al., 1999). Importantly, we hypothesize that ethnic differences exist for the prevalence of depressive symptoms and perceived discrimination, and the association between perceived discrimination and depressive symptoms.

## Method

This is a secondary data analysis of data collected as a part of the Asian American Liver Cancer Prevention Program (hereinafter the Program) for our paper. Using a non-probability sampling method, foreign-born Asian American adults, aged 18 years and older, were recruited from the community in the Baltimore-Washington Metropolitan Area (BWMA). One or two weeks before the Program, we had a pre-screening event to recruit eligible participants. Of the 645 eligible volunteer participants, 30 did not show up for the Program. Of the 615 who attended the Program, 15 did not complete the initial survey. A total of 600 Asian Americans aged 18 and older completed the survey (Juon, Strong, Kim, Park, & Lee, 2016).

### Recruitment Procedure

Participants who expressed interest in taking part in the study were invited through local community-based events and other connections made through a community advisory board (CAB) that was established in 2008 (see more detail, Juon et al., 2016; Juon, Guo, Kim & Lee, 2017).

### Data Collection Procedure

After obtaining informed consent, all of the participants were asked to complete a self-administered questionnaire in English, Chinese, Korean, or Vietnamese, with the assistance of a bilingual interviewer when necessary. The period of data collection went from April 2013 to March 2014. This study was approved by the Committee of Human Research at Johns Hopkins Bloomberg School of Public Health.

### Measures

Exploratory Factor Analysis (EFA) was conducted on the sample for the three measures prior to analyses to identify how the items on the scale measure the latent construct (e.g. depression, perceived discrimination). For each measure, the EFA included principal component factors and promax rotation, with screeplots and parallel analysis. Because the EFA is not the focus of the present study, few details of the EFA are included in the measures section (see Appendix A).

**Depressive symptoms**—The CES-D is the most commonly used self-report depression scale for Asian Americans (Kim et al., 2015). It is a 20-item measure of depressive

symptoms in the past week (Radloff, 1977) and is the outcome measure for this study. The 20-items were summed for each participant; higher scores equated to more depressive symptoms with a mean score of 11.66 ( $SD = 8.13$ ). Each question was scored on a 4-point scale (0 – 3), with a maximum score of 60, with “0” being, “rarely or none of the time”, and “3” being, “most or almost all of the time.” Four items were reverse coded as according to the original scale. Using a threshold of 16, the commonly used cutoff score for risk of depression when using the CES-D, the total sum was then dichotomized as is often done using the CES-D (Lewinsohn, Seeley, Roberts, & Allen, 1997). As seen in the literature, those coded as “1” (16+ score) were interpreted as likely “depressed”, while those with “0” (0–15 score) were likely “not depressed” (Fisher et al., 2007). The CES-D has been tested among Chinese, Korean, and Vietnamese populations and has shown to be culturally valid and reliable in many cases (Jang, Kim, & Chiriboga, 2005; Kim, DeCoster, Huang, & Chiriboga, 2011; Kuo, 1984; Li & Hicks, 2010; Noh, Avison, & Kaspar, 1992; Tran, Ngo, & Conway, 2003; Ying, Lee, Tsai, Yeh, & Huang, 2000). The EFA had a high internal consistency of scores (Cronbach’s  $\alpha = .83$ ).

**Perceived discrimination**—Perceived discrimination was defined using two variables labeled “discrimination” describing everyday (i.e., chronic strain), and “unfair treatment” describing major experiences of discrimination (i.e., life event). Because many of the existing discrimination scales are intended for the African American population and do not include items on language, two new modified scales for Asian Americans created by Chae and Lee (not yet published) were used, each modeled from the commonly used Everyday Discrimination Scale (Williams et al., 1997) and the Major Experiences of Discrimination Abbreviated Scale (Sternthl, Slopen, & Williams, 2011), respectively.

The “discrimination” variable was measured using a 7-item discrimination scale for Asian Americans (see Appendix B). These 7 items each ask about minor experiences of discrimination (i.e., chronic strain) that may occur in one’s everyday life. For example, item one asks, “In your lifetime in the U.S., how often have you been insulted or harassed due to your race or ethnicity?” Each item is scored on a scale of 0 (never) to 5 (almost every day). The 7 items were summed to create a total score with a mean of 3.93 ( $SD = 5.16$ ) and range of 0 to 35. The composite score of discrimination was highly skewed to the low end and was converted to a three category ordinal variable: participants who scored 0 represent a “never” group, those who scored 1–7 were a “mild” discrimination group, and those who scored 8 or higher were in the “high” discrimination group (Cronbach  $\alpha = .94$ )

A 4-item “unfair treatment” measure, loosely based on Williams Major Experiences of Discrimination scale, measured major experiences of perceived discrimination (see Appendix C). For instance, item one asks, “In your lifetime in the U.S., have you ever not been hired for a job, denied a promotion or fired due to one’s race or ethnicity?” and describes a major experience of discrimination (i.e., life event). Each item is scored on a scale of 0 to 3 with “0” being “never”, “1” being “once”, “2” being “twice”, and “3” being “three times or more”. The four items were summed to create a total score with a mean of 0.52 ( $SD = 1.31$ ), and range of 0 to 12. The composite score of unfair treatment was highly skewed to the low end and then dichotomized; “0” represented a “never” group coded as one



and those with “1 or higher” represented an “any unfair treatment” group coded as two (Cronbach’s alpha = .62).

**Control variables**—Demographic information included in the analysis were age, gender, ethnicity, family income, and English proficiency. These control variables were selected because they are often associated with health outcomes and in some cases, like English proficiency, are important sociodemographic characteristics for immigrants.

### Statistical Analysis

Perceived discrimination was the primary independent variable of interest, which was captured using two variables described as “discrimination” and “unfair treatment.” Due to the moderate correlation ( $0.39, p < .001$ ), “discrimination” (Model A) and “unfair treatment” (Model B) were modeled separately instead of being combined into one model. Simple logistic regression on each variable was conducted to produce unadjusted estimates. Multiple logistic regression was completed with variables selected based on theory and the exploratory data analysis. Odds ratio (OR) estimates were used as effect size estimates and followed the recommendations of small, medium, and large estimates from Olivier and Bell (2013), where small, medium, and large effect sizes include OR of 1.22 – 1.85, OR of 1.86 – 2.99, and OR of 3.0 or larger, respectively. This is the same for the reciprocals, where small, medium, and large effect sizes correspond to OR of 0.82 – 0.55, OR of 0.54 – 0.34, and OR of 0.33 – 0.01, respectively.

**Missing data**—All analyses were conducted in Stata14. There were 38 cases missing for the “discrimination” and 43 for the “unfair treatment” model. Multiple imputations were conducted in a 3-step process: imputation, completed-data analysis (estimation), and pooling. Multiple imputations consider the sampling variability due to missing data and assume a missing at random (MAR) pattern. Multiple logistic regression analyses included a total sample of 600 from ten imputations. Analyses of the complete case data and multiply imputed data were similar and resulted in the same inferences. Because of such, only the multiply imputed data are presented.

## Results

### Sample Description

Of the total sample, 58% were female, and the mean age was 47.3 years ( $SD = 11.82$ ) (see Table 1). The sample was equally proportional by Asian ethnicity; a third each was foreign-born Chinese, Korean, and Vietnamese American. The sample was highly educated (more than half had college degrees), and more than three quarters were married or living with a partner. Only a quarter of the sample reported having “fluent or well” English proficiency. Education, marital status, family income, and English proficiency were each statistically significantly different when comparing by Asian ethnicity. Chinese Americans were the highest educated with nearly 75% reporting their highest educational attainment as “college graduate” or higher. Vietnamese Americans were least likely to be married, most likely to be “separated/divorced/widowed,” earned the least family income, and had the worst English proficiency when compared to Chinese and Korean Americans.

### Prevalence of Depressive Symptoms

Of the total sample, 26% were likely “depressed” (see Table 2). Being likely “depressed” was statistically significantly different by ethnicity and gender. Twenty-one percent of Chinese, 34% of Korean, and 24% of the Vietnamese Americans were likely “depressed” ( $p < .006$ ). More females than males were depressed (30% vs. 20%,  $p = .007$ ).

### Prevalence of Perceived Discrimination

Nearly three out of every five participants reported they had any “discrimination”, while over a fifth of participants reported any “unfair treatment” (see Table 3). “Discrimination” and “unfair treatment” were reported as statistically significantly different between the three Asian ethnicities. Korean Americans reported the most discrimination when using the “discrimination” variable at nearly 80%, followed by Chinese Americans (57%), and then by the Vietnamese Americans (43%). Less variation between Asian ethnicities occurred using the “unfair treatment” variable (29% of Chinese, 20% of Korean, and 18% of Vietnamese Americans reported “unfair treatment”). Using the “discrimination” variable, “mild discrimination” between the three ethnic groups ranged from 43% – 36%, with Chinese Americans representing the highest percentage and Vietnamese Americans representing the lowest percentage. Korean Americans had the highest percentage to report “high discrimination” (37%), which was more than twice the percentage for Chinese American (15%) and more than five times the percentage for Vietnamese Americans (7%).

### Association of Perceived Discrimination and Depressive Symptoms

Simple logistic regression for Model A for “discrimination” (see Table 4) and for Model B “unfair treatment” (see Table 5) showed both discrimination and unfair treatment were associated with outcome of depressive symptoms. Gender, ethnicity, family income, and English proficiency were also statistically associated with depressive symptoms.

#### Multiple logistic regression

**Total sample analyses:** Perceived discrimination (“discrimination” and “unfair treatment”) was statistically significantly associated with depressive symptoms in multiple logistic regression analyses of the total sample (see Table 4 and 5). The odds of reporting of being likely “depressed” among participants who have “high discrimination” (score of 8 or higher) in the U.S. are 6.35 times greater than the odds of reporting being likely “depressed” among participants who have never experienced “discrimination” in the U.S. (OR = 6.35, 95% CI [3.42, 11.77]), this suggests a large effect (see Table 4). A medium effect was reported among participants who have “mild discrimination” in the U.S. (OR = 2.45, 95% CI [1.48, 4.06]). The odds of reporting being likely “depressed” among participants who have had “any unfair treatment” in the U.S. also had a medium effect; there was a 2.76 times greater odds of reporting being likely “depressed” among participants who reported any “unfair treatment” when compared to those who have never experienced “unfair treatment” in the U.S. (OR = .76, 95% CI [1.73, 4.39]) (see Table 5).

There were significant findings for specific categories of gender, family income, and English proficiency for both Model A and B (see Table 4 and 5). For instance, women were more



likely to be depressed than men (OR = 1.79, 95% CI [1.18, 2.73] Model A; OR = 1.66, 95% CI [1.10, 2.49] Model B). Compared to those with low income category, those in highest income category were less likely to be depressed (OR = 0.25, 95% CI [0.12, 0.54] for “\$90,000 or more”, OR = 0.52, 95% CI [0.29, 0.97] for “\$50,000 – <\$90,000” Model A; OR = 0.30, 95% CI [0.14, 0.63] for “\$90,000 or more”, OR = 0.59, 95% CI [0.36, 0.99] for \$20,000 – <\$50,000 Model B). Poor English proficiency was associated with greater odds of being likely “depressed” (OR = 2.23, 95% CI [1.21, 4.08] for “so so” Model A; OR = 2.48, 95% CI [1.37, 4.49] for “so so” Model B).

**Ethnic group sub-analyses:** Perceived discrimination was associated with depressive symptoms for each of the three ethnic groups; there were Asian ethnic differences for this association, but the association was not statistically significant for every measure of perceived discrimination used for all ethnic groups. When stratified by ethnicity, “discrimination” (Model A) was associated with depressive symptoms for both the “mild discrimination” and “high discrimination” group for Chinese and Vietnamese Americans but only in the high category for Korean Americans (see Table 6). Additionally, Chinese Americans had the highest OR reported among the three Asian ethnicities for those in the “mild discrimination” group for odds of being likely “depressed” compared to the odds of those who were not discriminated against; however all ethnic groups had a medium effect size (see Table 6). For the “high discrimination” group, Korean Americans reported the highest OR of being likely “depressed” among the three Asian ethnicities and effect sizes were large for all ethnic groups. “Unfair treatment” (Model B) was statistically significant when stratified by Asian ethnicity for Korean and Vietnamese Americans, with Vietnamese Americans reporting the highest OR of being likely “depressed”, followed by Korean Americans (see Table 6). However, most of the findings had wide confidence intervals suggesting that the sample size may be too small and that there is too much variability in the sample. Thus, these data should be interpreted with caution.

## Discussion

Several key findings emerged from this research, and all hypotheses were at least partially supported (see Appendix D). First, over a quarter of the population sampled were depressed and supports our hypothesis related to prevalence of depressive symptoms. This is higher than the 19% of the general population sampled in the original study of the CES-D who reported being depressed (Radloff, 1977). This finding could indicate that this population experiences depressive symptoms at a high rate or that a cultural bias in interpretation of the CES-D exists though unlikely because the CES-D has been tested for cultural validity in these populations. Our study also found that differences in prevalence of depressive symptoms by Asian ethnicity exist, supporting our hypothesis. One-fifth to one-third of each ethnic group were considered to be depressed; Korean Americans, as hypothesized, had the highest prevalence of depressive symptoms similar to the meta-analysis in Kim et al. (2015). Similar to past literature (Nolen-Hoeksema, 2001; Pratt & Brody, 2014), more females than males were depressed.

Secondly, substantial perceived discrimination was reported among the total sample, particularly in the “high discrimination” category of the everyday discrimination measure,

and was statistically significantly different between all ethnic groups, supporting our hypotheses for prevalence of perceived discrimination. Our findings for Vietnamese and Chinese prevalence of everyday discrimination (43% and 57%, respectively) were similar to previously cited national data (Chae et al., 2008) (38% vs. 61%, respectively). As hypothesized, Vietnamese Americans experienced the lowest prevalence of perceived discrimination when compared to Chinese and Korean Americans. The Vietnamese immigration experience is uniquely different from Chinese and Korean Americans since most immigrated because of war (Centers for Disease Control and Prevention [CDC], 2008). The discrimination felt from war may have buffered them from feeling discriminated against in the U.S. For many Vietnamese refugees, the U.S. acted as a safe haven from persecution, and though discrimination may occur in the U.S., Vietnamese Americans may not interpret acts of discrimination as such and as the least fluent in English of all the ethnic groups, they may not always understand when discrimination in the everyday context is occurring. Additionally, being the most recent group to arrive in the U.S., the Vietnamese may have the greatest ethnic identity of the three ethnic groups, and if so our finding may support past literature on ethnic identity that those with stronger ethnic identity have a smaller magnitude associated between discrimination and distress (Yip et al., 2008).

Korean Americans had the highest perceived discrimination in the everyday context. More Korean Americans compared to Chinese and Vietnamese Americans reside in the Baltimore-Washington Metro Area (Hooper & Batalova, 2015; Rkasnuam & Batalova, 2014). They also are more likely to have come to the U.S for employment (Zong & Batalova, 2014) and are owners of several grocery/corner markets in the Baltimore region (Cassie, 2013). Thus, Korean Americans may have more day-to-day exposure to other ethnic populations and as a result may report higher perceived discrimination in the everyday context.

Also, “unfair treatment” (major experience of discrimination) was not as commonly reported as “discrimination” (minor or everyday discrimination) which supports the current literature on the general population (Kessler et al., 1999) and our secondary hypothesis for prevalence of perceived discrimination. Limited English proficiency of this foreign-born Asian sample likely contributes to the difference of prevalence between everyday discrimination and major experiences of discrimination (i.e., chronic strain vs. life events). For example, the “discrimination” scale asks if one is insulted or called names. If one is not fluent in English, it is less likely they will be able to interpret this type of discrimination, whereas for the “unfair treatment” measure being fluent in English is less relevant because the discrimination is more concrete, e.g., an individual can interpret that they are being unfairly fired without being fluent in English. This study contributes to the literature on discrimination by providing results specific to foreign-born Asian Americans aggregated and disaggregated by ethnicity which are consistent with research on Asian Americans and the general population.

Interestingly, those whose English proficiency are “so so” had the highest odds of being depressed compared to those who are “fluent or well” in speaking English which is somewhat consistent with past research that has shown that those with low English proficiency are linked to higher depressive symptoms (Bernstein, Park, Shin, Cho, & Park, 2011); those whose English is “so so” may understand enough English to identify when

discriminatory remarks are being made towards them versus those whose English is “poor” or speaks “not at all.” Therefore, a threshold may exist where low English proficiency is no longer a risk factor but a protective factor against increased depressive symptoms in the context of discrimination. These high estimates are of concern and prevention efforts are needed for these populations.

Thirdly, perceived discrimination (“discrimination” and “unfair treatment”) was statistically significantly associated with depressive symptoms, supporting the hypothesis that perceived discrimination is associated with depressive symptoms among the total sample. Our hypothesis that perceived discrimination is associated with depressive symptoms for each of the three ethnic groups was partially supported because the association did not hold for every measure of perceived discrimination used for all ethnic groups, and ethnic differences in this association did exist as we hypothesized. The sub-analyses showed that “high discrimination” resulted in varied ORs by ethnicity, with Korean Americans having the highest ORs for being likely “depressed” when comparing the odds of the those who had “high discrimination” to the odds of those who had “no discrimination”; this finding is likely partially because Korean Americans had a higher percentage of perceived “high discrimination” and a higher percentage who were likely “depressed” compared to the Chinese and Vietnamese American samples, thus increasing the chance for an association. Thus, ethnicity matters in determining perceived discrimination’s strength of association with depressive symptoms.

Of the Asian ethnicities Vietnamese Americans had the highest odds of being likely “depressed” for those who reported “any unfair treatment” compared to the odds of being likely depressed for those who had “no unfair treatment”. This suggests that “unfair treatment” bears more weight to Vietnamese Americans than the other two ethnic groups, even though they reported a smaller percentage of “any unfair treatment”. This could be aligned with sentiments of the war in which “unfair treatment” in this case, a major experience of discrimination, could be linked to memories (or stories told to younger generations) of being unfairly treated by communists during the war. For those who escaped the war, “unfair treatment” could trigger intense negative memories that may typically be associated with depressive symptoms. Thus, for Vietnamese Americans when compared to Chinese and Korean Americans, “unfair treatment” (major discrimination) produces a more negative effect (greater odds of being likely “depressed”), and “discrimination” (everyday discrimination) produces a less negative effect (lesser odds of being likely “depressed”). Thus, type of discrimination may be most salient in determining the strength of association for Vietnamese Americans.

Findings from this research were consistent with the minimal past literature on the general and Asian American population indicating that perceived discrimination was statistically significantly associated with depressive symptoms. Our research contributes new knowledge to the current literature on foreign-born Asian Americans and discrimination, particularly from our finding that suggests that the strength of association was stronger for everyday than major experiences of discrimination for this population. The ORs increased with more “discrimination”, suggesting that perceived discrimination is clearly linked to an increase in depressive symptoms. Thus, understanding what experiences are interpreted as

discrimination and how discrimination impacts depressive symptoms is needed in future studies.

There are multiple strengths to this study. First, this study examines a multi-ethnic Asian American sample in a region with a high percentage of foreign-born Chinese, Korean, and Vietnamese Americans. This is the first study of its kind to include a community-based sample of these three populations, and that stratifies by ethnicity while examining this particular association. Additionally, the community-engaged approach of a multilingual and multi-disciplinary research team ensured that the population worked with researchers through each phase of the study and that native and English languages were used.

The focus of discrimination is a strength of the study because discrimination as an ongoing issue of this nation. Another strength is that our hypotheses were informed and supported by past literature. Specifically, discrimination among Asian immigrants needs further investigation. These three Asian ethnicities share unique histories that may coincide with different experiences of discrimination in the U.S. and this study is the only known study to examine these differences in this context (including both types of discrimination) among these three populations. Other strengths include controlling for gender, age, ethnicity, family income, and English proficiency in the analyses and the use of strong measures.

There were several limitations to this study including the purposive quota sampling that can result in selection bias. When compared to national averages of Asian Americans, a slightly higher percentage of females comprise this sample compared to the national average (58% vs. 52.7%, respectively) (Appendix E). Overall, the total sample was older, slightly more educated, had a greater percentage that were married, had higher family income, and had a higher percentage who did not speak English well when compared to the national averages. There also is variation by Asian ethnicity when compared to the corresponding Asian ethnic group national average. However, the national averages also include U.S.-born Asian Americans. This population was also unique because the participants consented to a clinical study involving Hepatitis B screening and because some of the recruitment occurred at religious venues, this sample is not generalizable to the general population. However, Lee and Cheng (2006) have noted that the Asian American population is a population that is hard to reach and that using ethnic-based venues can be similar to the general population if done well.

Another limitation is that the duration used for the CES-D does not match the “discrimination” measure; the duration for the “discrimination” variable is “in your lifetime” while depression is “in the past week”. Thus, the CES-D does not capture a history of depression but only captures current symptoms, and the recency of each incident of discrimination was not calculated in this analysis which may affect the association with depressive symptoms. Also, the “unfair treatment” scale included only 4 items, and had a relatively low Cronbach’s alpha, suggesting that the scores may not be as reliable as the scores from the other two scales. However, this may be an example of fewer items on a scale reducing the Cronbach’s alpha (Cortina, 1993).

Asian Americans, often referred to as the “model minority”, are overlooked as a population with poor mental health and are in need of culturally appropriate services (Sue, Yan Cheng, Saad, & Chu, 2012). This study is a first of its kind to examine the relationship between perceived discrimination and depressive symptoms among foreign-born Chinese, Korean, and Vietnamese Americans in a community-based sample. Findings should encourage future research in uncovering if this association holds true and if so, why it exists among these three foreign-born Asian ethnic populations.

## Supplementary Material

Refer to Web version on PubMed Central for supplementary material.

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**Table 1**

Descriptive Characteristics of Total Sample of Foreign-born Asians, Baltimore-Washington Metropolitan Area, 2013–14, N = 600

	<b>Total N (%)</b>	<b>Chinese n (%)</b>	<b>Korean n (%)</b>	<b>Vietnamese n (%)</b>
<b>Number of Participants</b>	600 (100)	201 (33.5)	198 (33.0)	201 (33.5)
<b>Age (years)</b>	47.3 ± 11.8 Range: 18 – 91	46.2 ± 1.3 Range: 18 – 78	48.2 ± 11.0 Range: 18 – 70	47.5 ± 11.0 Range: 18 – 91
<b>Gender</b>	N = 600	n = 201	n = 198	n = 201
Male	252 (42.0)	84 (41.8)	79 (39.9)	89 (44.2)
Female	348 (58.0)	117 (58.2)	119 (60.1)	112 (55.7)
<b>Education</b>	N = 595	n = 200	n = 197	n = 198
<High School	86 (14.5)	15 (7.5)	15 (7.6)	56 (28.3)
High School graduate	152 (25.6)	21 (10.5)	50 (25.4)	81 (40.9)
Vocational School/Some college	72 (12.1)	15 (7.5)	35 (17.8)	22 (11.1)
College graduate	160 (26.9)	48 (24.0)	81 (41.1)	31 (15.7)
Graduate school or higher	125 (21.0)	101 (50.5)	16 (8.1)	8 (4.0)
<b>Employment</b>	N = 597	n = 200	n = 198	n = 199
Not Employed	199 (33.3)	73 (36.5)	69 (34.9)	57 (28.6)
Employed	398 (66.7)	127 (63.5)	129 (65.2)	142 (71.4)
<b>Marital Status</b>	N = 599	n = 201	n = 197	n = 201
Married/living with a partner	472 (78.8)	161 (80.1)	163 (82.7)	148 (73.6)
Separated/Divorced/Widowed	50 (8.4)	8 (4.0)	10 (5.1)	32 (15.9)
Single	77 (12.9)	32 (15.9)	24 (12.2)	21 (10.4)
<b>Family Income</b>	N = 585	n = 195	n = 192	n = 198
<\$20K	150 (25.6)	42 (21.5)	35 (18.2)	73 (36.9)
\$20K– <\$50K	214 (36.6)	45 (23.1)	90 (46.9)	79 (39.9)
\$50K– <\$90K	112 (19.2)	36 (18.5)	52 (27.1)	24 (12.1)
\$90K+	109 (18.6)	72 (36.9)	15 (7.8)	22 (11.1)
<b>English Proficiency</b>	N = 600	n = 201	n = 198	n = 201
Fluent or Well	141 (23.5)	85 (42.3)	32 (16.2)	24 (11.9)
So So	234 (39.0)	72 (35.8)	77 (38.9)	85 (42.3)
Poor or Not at all	225 (37.5)	44 (21.9)	89 (45.0)	92 (45.8)

**Table 2**

Depressive Symptoms by Ethnicity and Gender (N = 600)

Variable	CES-D Score 0 – 15 (Not Depressed)	CES-D Score 16+ (Depressed)	Test Statistic
<b>Ethnicity %</b>	<i>n</i> = 433	<i>n</i> = 152	
Chinese	79.50	20.50	
Korean	65.79	34.21	$\chi^2 = 10.395$
Vietnamese	76.41	23.59	$p = .006$
<b>Gender %</b>	<i>n</i> = 433	<i>n</i> = 152	
Male	79.76	20.24	$\chi^2 = 7.324$
Female	69.82	30.18	$p = .007$

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**Table 3**

Discrimination and Unfair Treatment by Ethnicity, N = 600

		Discrimination						
Total (N = 590)		Chinese (n = 197)		Korean (n = 192)		Vietnamese (n = 201)		
N	%	n	%	n	%	n	%	
None	240	40.68	84	42.64	41	21.35	115	57.21
Mild (1-7 score)	236	40.68	84	42.64	80	41.67	72	35.82
High (8+ score)	114	19.32	29	14.72	71	36.98	14	6.97

  

		Unfair Treatment						
Total (N = 588)		Chinese (n = 194)		Korean (n = 193)		Vietnamese (n = 201)		
N	%	n	%	n	%	n	%	
None	458	77.89	138	71.13	155	80.31	165	82.09
Any (1+ score)	130	22.11	56	28.87	38	19.69	36	17.91

*p* = .020

**Table 4**

Model A, Logistic Regression Analyses of Discrimination and Depressive Symptoms, N = 600, Multiple Imputed Data

Variable	Crude		Adjusted	
	OR [95% CI]	<i>p</i>	OR [95% CI]	<i>p</i>
<b>Discrimination</b>				
None (0 score)	Reference		Reference	
Mild (1 – 7 score)	1.98 [1.25, 3.14]	0.004**	2.45 [1.48, 4.06]	0.001***
High (8+ score)	5.06 [3.00, 8.53]	0.001***	6.35 [3.42, 11.77]	0.001***
<b>Age (years)</b>				
18 – 39	Reference		Reference	
40 – 59	1.53 [0.96, 2.46]	0.08	1.53 [0.89, 2.63]	0.13
60 and older	1.09 [0.55, 2.14]	0.81	1.02 [0.48, 2.18]	0.96
<b>Gender</b>				
Male	Reference		Reference	
Female	1.73 [1.18, 2.55]	0.005**	1.79 [1.18, 2.73]	0.006**
<b>Ethnicity</b>				
Chinese	Reference		Reference	
Korean	1.96 [1.25, 3.09]	0.004**	0.96 [0.55, 1.66]	0.87
Vietnamese	1.22 [0.76, 1.95]	0.42	0.99 [0.57, 1.70]	0.96
<b>Family Income</b>				
\$0 – <\$20,000	Reference		Reference	
\$20,000 – <\$50,000	0.80 [0.51, 1.28]	0.36	0.62 [0.37, 1.04]	0.07
\$50,000 – <\$90,000	0.89 [0.52, 1.32]	0.67	0.52 [0.29, 0.97]	0.04*
\$90,000 or more	0.41 [0.22, 0.77]	0.005**	0.25 [0.12, 0.54]	0.001***
<b>English Proficiency</b>				
Fluent or Well	Reference		Reference	
So So	2.56 [1.49, 4.39]	0.001***	2.23 [1.21, 4.08]	0.01**
Poor or Not at all	2.09 [1.21, 3.62]	0.009**	1.60 [0.83, 3.10]	0.16

\*  $p < .05$ ,

\*\*  $p < .001$ ,

\*\*\*  $p < .001$  (two-tailed tests)



**Table 5**

Model B, Logistic Regression Analysis of Depressive Symptoms and Unfair Treatment, N = 600, Multiple Imputed Data

Variable	Crude		Adjusted	
	OR [95% CI]	<i>p</i>	OR [95% CI]	<i>p</i>
<b>Unfair Treatment</b>				
None (0 score)	Reference		Reference	
Any (1+ score)	2.21 [1.45, 3.37]	0.001***	2.76 [1.73, 4.39]	0.001***
<b>Age (years)</b>				
18 – 39	Reference		Reference	
40 – 59	1.53 [0.96, 2.46]	0.08	1.46 [0.86, 2.49]	0.16
60 and older	1.09 [0.55, 2.14]	0.81	0.84 [0.40, 1.76]	0.65
<b>Gender</b>				
Male	Reference		Reference	
Female	1.73 [1.18, 2.55]	0.005**	1.66 [1.10, 2.49]	0.02*
<b>Ethnicity</b>				
Chinese	Reference		Reference	
Korean	1.96 [1.25, 3.09]	0.004**	1.63 [0.97, 2.72]	0.07
Vietnamese	1.22 [0.76, 1.95]	0.42	0.92 [0.54, 1.57]	0.77
<b>Family Income</b>				
\$0 – <\$20,000	Reference		Reference	
\$20,000 – <\$50,000	0.80 [0.51, 1.28]	0.36	0.59 [0.36, 0.99]	0.04*
\$50,000 – <\$90,000	0.89 [0.52, 1.32]	0.67	0.63 [0.35, 1.13]	0.12
\$90,000 or more	0.41 [0.22, 0.77]	0.005**	0.30 [0.14, 0.63]	0.002**
<b>English Proficiency</b>				
Fluent or Well	Reference		Reference	
So So	2.56 [1.49, 4.39]	0.001***	2.48 [1.37, 4.49]	0.003**
Poor or Not at all	2.09 [1.21, 3.62]	0.009**	1.61 [0.84, 3.07]	0.15

\*  $p < .05$ ,

\*\*  $p < .001$ ,

\*\*\*  $p < .001$  (two-tailed tests)

Multiple Logistic Regression Analysis of Discrimination and Unfair Treatment by Foreign-Born Asian Ethnicity, Multiple Imputed Data

Table 6

Variable	Chinese (n = 201)		Korean (n = 198)		Vietnamese (n = 201)	
	OR [95% CI]	p	OR [95% CI]	p	OR [95% CI]	p
<b>Discrimination<sup>a</sup></b>						
None (0 score)	Reference		Reference		Reference	
Mild (1-7 score)	2.71 [1.01, 7.24]	0.05*	2.05 [0.68, 6.18]	0.20	2.08 [0.99, 4.40]	0.05*
High (8+ score)	5.19 [1.61, 16.75]	0.006***	7.09 [2.43, 20.68]	0.001***	5.05 [1.22, 20.87]	0.03*
<b>Unfair Treatment<sup>a</sup></b>						
None (0 score)	Reference		Reference		Reference	
Any (1+ score)	2.16 [0.94, 4.99]	0.07	2.54 [1.15, 5.58]	0.02*	3.26 [1.38, 7.68]	0.007***

Note.

<sup>a</sup>Adjusted for age, gender, family income, and English proficiency.

\* p < .05,

\*\*

p < .001,

\*\*\*

p < .001 (two-tailed tests)