



Immigration and Language Factors Related to Depressive Symptoms and Suicidal Ideation in Asian American Adolescents and Young Adults

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Abstract

This study examined the effects of immigration and language factors on depressive symptoms and suicidal ideation among Asian American adolescents and young adults during three developmental periods. Using the National Longitudinal Study of Adolescent to Adult Health, linear regression and linear probability models were used for the data analyses. A significant group difference was observed in suicidal ideation between Asian American youth who were born in the U.S. and whose families spoke English at home and all other Asian American youth. Differences between ethnic groups were found in the mean scores of depressive symptoms and the probabilities of suicidal ideation between Asian American youth and non-Hispanic white (NHW) youth. The findings of this study reveal mental health disparities between Asian American youth and NHW youth in the U.S. These results emphasize the importance of implementing culturally sensitive mental health interventions for Asian American adolescents and young adults.

Keywords Depression · Suicidal ideation · Asian American youth · Immigration status · English proficiency

Introduction

Depressive symptoms during adolescence are a serious problem for the individual and society and lead to detrimental health risk behaviors during the transition to adulthood and later in adult life. The potential lifelong consequences of depressive symptoms include the interruption of core developmental tasks in the educational, social, and psychological spheres; eating and sleep disturbances; impairment in relationships with family and peers; lack of social support; and lack of interest in or motivation to engage in activities (Merikangas and Angst 1995; Rubenstein 1991; Song et al. 2011). The association between depressive symptoms and suicidal ideation in adolescence has been shown to increase

the risk of a future suicide attempt and suicide (Brent et al. 1999; Cash and Bridge 2009).

The prevalence rates of mental health problems tend to increase with age throughout adolescence (Child Trends 2012). According to epidemiologic studies, the prevalence of depressive symptoms is elevated by the age of 16 and peaks in young adulthood (Hankin et al. 1998; McGee et al. 1992; Substance Abuse and Mental Health Services Administration, SAMHSA 2017). In 2016, an estimated 3.1 million adolescents aged 12 to 17 in the U.S. had at least one major depressive episode, which represented 12.8% of the U.S. population aged 12 to 17 (SAMHSA 2017). The prevalence of suicidal ideation is generally high at 17.2% of students in grades 9–12 in the U.S. in 2017 (Kann et al. 2018). Estimates of the rate of youth suicide ideation have been variable across national and individual studies ranging from 13% (Thompson and Light 2011) to 40% (Lewinsohn et al. 1998).

The overall prevalence rates of mental health problems may not differ in terms of race and ethnicity (Gudino et al. 2009; Kodjo and Auinger 2003), but the patterns of depressive symptoms and suicidal ideation among adolescent populations appear to be influenced by ethnicity (Balis and Postolache 2008; Moon and Rao 2010; Song et al. 2011). For example, growing evidence suggests that Asian American youth are at a similar or higher risk of mental health

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problems than non-Hispanic white (NHW) youth (Centers for Disease Control and Prevention 2017; Kim and López 2014; Mak et al. 2011; Song et al. 2011). Prior studies have reported a higher prevalence of depressive symptoms in Asian American high school students than in their NHW counterparts (Centers for Disease Control and Prevention 2017; Song et al. 2011) and higher prevalence rates of suicidal ideation and behaviors in Asian American youth than in NHW youth (Centers for Disease Control and Prevention 2017).

Health behaviors among Asian Americans often vary depending on their immigration and acculturation experiences (Wang and Kim 2013; Yee et al. 2009). A number of previous study used proxy measurements of acculturation experience such as immigration status (i.e., U. S. born vs. foreign born) (Hahm et al. 2004; Salant and Lauderable 2003) and language preference (Wong and Maffini 2011; Zane and Mark 2003) based on the assumption that the degree of acculturation can be approximated by assessing a cultural minority member's amount of exposure to the dominant culture (Salant and Lauderable 2003). Speaking the language of the country of origin in the home reflects not only some resistance to acculturation but also the ethnic density of the surrounding neighborhood, the quality of relationships between immigrant parents and their adolescent children, and propensities and abilities to learn new languages, among other things (Portes and Schauffler 1994; Tseng and Fuligni 2004). According to the 2010 U.S. Census, 64.1% of all Asian Americans were foreign born, and 70.3% of Asian Americans spoke a language other than English at home (Budiman et al. 2019; U.S. Census Bureau 2011). The present research treats both immigration status and language spoken in the home as immigration and language factors that partially reflect the acculturation process.

Prior research has found associations among immigration, language and depressive symptoms in Asian American youth (Choi et al. 2014; Romero et al. 2007; Song et al. 2011; Wyatt et al. 2015). For example, Song et al. (2011) found that Asian high school students who were born in a foreign country had a higher prevalence of depressive symptoms than their NHW counterparts. Romero et al. (2007) reported that not speaking English was an important risk factor predicting higher stress due to discrimination or negative stereotypes and that perceived stress increased depressive symptoms among Asian American youth in grade 8. In contrast, Choi et al. (2014) found that greater acculturation was related to higher levels of depressive symptoms among Korean adolescents and that both Korean language and English language proficiency were predictive of a decrease in depressive symptoms. These findings affirm the potential importance of immigration status and language spoken at home for depression among Asian American youth.

Similarly, immigration and language have been reported to be risk factors or protective predictors of suicide behaviors across immigrant groups (Delgado et al. 2011; Forte et al. 2018; Kennedy et al. 2005; Kposowa et al. 2008; Leong et al. 2008; Wyatt et al. 2015). However, there are few empirical studies focused on Asian American youth, and these have shown somewhat mixed results. Delgado et al. (2011) found that U.S. born Asian Americans reported higher levels of suicide ideation than immigrant Asian Americans. In contrast, Kennedy et al. (2005) reported that less acculturated Asian college students were more likely to have suicidal thoughts than their NHW counterparts but were not more likely to have suicide plans or attempts. These contradictions may indicate that factors related to immigration status and language can mediate the influence of other risk factors on suicidality (Demetry and Dalal 2017).

Previous findings highlight the importance of considering the within-group heterogeneity among Asian Americans based on immigration and language factors. Although Asian Americans have common cultural characteristics, their mental health outcomes may differ in accordance with their life experiences related to immigration status and English proficiency (Kramer et al. 2002; Yee et al. 2009). Merging distinct segments of Asian Americans can yield characterizations that obscure important differences in mental health outcomes. It is clear that a considerable number of Asian American adolescents and young adults suffer from mental health difficulties (Balis and Postolache 2008; Song et al. 2011; Wyatt et al. 2015), but there is little research on differences in depressive symptoms and suicidal ideation among Asian American youth as a function of immigration status and primary language spoken at home over time.

The Current Study

The current study focuses on depressive symptoms and suicidal ideation as a function of Asian American subgroups categorized by their immigration status and primary language spoken at home using data from the National Longitudinal Study of Adolescent to Adult Health (Add Health) during adolescence, early young adulthood, and young adulthood.

Since results regarding mental health outcomes among Asian Americans have been inconsistent, it is critical to consider the within-group heterogeneity in this population to better understand the mental health status. Although Asian Americans have common cultural characteristics, their mental health outcomes may differ in accordance with life experiences related to their immigration status and English proficiency (Choi et al. 2014; Kramer et al. 2002; Yee et al. 2009; Wyatt et al. 2015). These differences highlight the importance of disaggregating Asian Americans and

understanding their mental health issues in terms of Asian American subgroups.

This study hypothesized that the mean scores of depressive symptoms and suicidal ideation during adolescence, early young adulthood, and young adulthood differ between Asian American subgroups defined by their immigration status and primary language spoken at home. It is also hypothesized that Asian American adolescents and young adults are more vulnerable to adverse mental health outcomes than their NHW counterparts.

The purpose of this study was to compare (1) the mean scores of depressive symptoms and suicidal ideation during three major developmental periods (adolescence, early young adulthood, and young adulthood) among four Asian American subgroups categorized by immigration status and primary language spoken at home and (2) ethnic differences in the mean scores of depressive symptoms and suicidal ideation between Asian American subgroups and NHW youth.

Ethical Considerations

This study was exempt from federal oversight per 45 CFR 46 101(b) [4] by the University Committee on Activities Involving Human Subjects (UCAIHS) of New York University (13-9443). Additionally, the authors of this manuscript have no conflicts of interest related to this research.

Methods

Study Design

This study used data from the National Longitudinal Study of Adolescent to Adult Health (Add Health), a nationally representative study of U.S. adolescents. Add Health is a four wave, longitudinal study with a sample of 20,745 adolescents in grades 7 to 12. Sampling and recruitment procedures for Add Health are detailed elsewhere (Harris 2013). This study used three waves (Waves I, III, and IV) of the Add Health data for a subsample of Asian and NHW youth who completed the in-home interviews. NHW youth were included as a reference group. The general age range of respondents was 11 to 19 years at Wave I, 18 to 26 years at Wave III, and 24 to 32 years at Wave IV. A set of longitudinal sampling weights derived by Add Health statisticians was used for the three waves. The sample sizes were 1418 Asian and 8369 NHW youth in Wave I, 1079 Asian and 6210 NHW youth in Wave III, and 946 Asian and 6607 NHW respondents in Wave IV. The sample in the three waves included the same individuals followed over time.

Measures

Depressive Symptoms and Suicidal Ideation

Depressive symptoms were assessed by a 9-item version of the Center for Epidemiological Studies-Depression (CES-D) scale (Radloff 1977). Adolescents indicated how often in the previous 2 weeks they had been bothered by things that did not usually bother them, felt sad, felt depressed, or had trouble keeping their mind on what they were doing. Responses were rated on a 4-point scale ranging from 0 (rarely or none of the time) to 3 (most or all of the time). Two positively worded items were reverse coded. Higher scores indicate more severe depressive symptoms. In this study, mean scores in the three waves were obtained by averaging the CES-D items. The alpha coefficients of the CES-D used in this study were 0.81, 0.80, and 0.82 during Waves I, III, and IV, respectively. Prior research involving Asian American adolescents using a 9-item version of the CES-D scale has reported high levels of reliability and validity (Bradley et al. 2010; Suh et al. 2017). Suicidal ideation was measured at all waves by the following item: “During the past 12 months, did you ever seriously think about committing suicide?” The response was scored as a binary outcome, either 0 (no) or 1 (yes). A higher score indicates a greater probability of having suicidal thoughts.

Ethnicity

Ethnicity was categorized based on the following questions. Youth were first asked if they were of Hispanic or Latino origin. If they answered no, they were asked to select their ethnic category among NHW, African American, Asian or Pacific Islander, American Indian or Alaskan Native, or Other. Youth who selected Asian or Pacific Islander were then asked to specify their ethnic background. In the current study, we included only NHW youth who were born in the U.S. and spoke English at home as a reference group.

Immigration and Language Factors

Immigration status was assessed by asking the adolescents if they were born in the U.S. and was characterized dichotomously as either 1 (U.S. born) or 0 (foreign born). Primary language spoken at home was assessed by the question, “What language is usually spoken in your home?” The primary language at home was also dichotomized as either 1 (English) or 0 (non-English). In the current study, both factors were used to define the following four Asian American subgroups: (1) Asian American youth who were born in the U.S. and spoke English at home (AA1), (2) Asian American youth who were born in the U.S. and spoke the language of the country of origin at home (AA2), (3) Asian American

youth who were not born in the U.S. and spoke English at home (AA3), and (4) Asian American youth who were not born in the U.S. and spoke the language of their country of origin at home (AA4).

Covariates

A set of additional variables was included as potential covariates because mental health outcomes are related to sociodemographics and the family environment during adolescence and adulthood (Anyon et al. 2014; Kerr et al. 2006). These variables included the youth’s age, gender (1 = Male, 2 = Female), and family structure (0 = No father in the household, 1 = Biological father in the household), mother’s marital status (0 = Never married/other, 1 = Married), mother’s education (1 = Less than high school, 2 = High school graduate, 3 = Trade school, 4 = College graduate or above), and annual household income.

Analytic Strategy

The research questions were evaluated using multiple statistical strategies, including linear regression and a linear probability model. Weights provided by the Add Health statisticians were used in all analyses except the descriptive analyses reported in Table 1.

Descriptive statistics were used to examine sociodemographic characteristics for both Asian American and NHW youth. Group differences in sociodemographic

characteristics were tested using t-tests and χ^2 tests. Linear regression and linear probability models were separately applied to conduct group mean comparisons of the occurrence of depressive symptoms and suicidal ideation at each developmental stage in the four Asian American subgroups. Covariates were not included in these group comparisons because the main interest was to document differences in depressive symptoms and suicide ideation among Asian American subgroups irrespective of covariates. Then, the group means of the occurrence of depressive symptoms and suicidal ideation among the Asian American subgroups and the NHW group were compared at each developmental period after, controlling for covariates. A Bonferroni test was used to correct the familywise error rate ($p < .05$) when conducting formal statistical comparisons among the groups. The Bonferroni correction method calculates a new pair-wise alpha by dividing the familywise error rate by the number of comparisons (Abdi 2010). SPSS 24.0 was used for all data analyses.

Results

Descriptive Analyses

Table 1 presents the (unweighted) group comparisons of sociodemographic characteristics during adolescence (Wave I) in the sample. In the Asian American group, the mean age was 16.11 ($SD = 1.70$); males accounted

Table 1 Group comparisons of sociodemographic characteristics of Asian American and non-Hispanic white adolescents ($N = 9787$)

Variable	Asian Americans ($n_1 = 1418$)		Non-Hispanic Whites ($n_2 = 8369$)		t/χ^2
	N (%)	<i>M</i> (<i>SD</i>)	N (%)	<i>M</i> (<i>SD</i>)	
Age		16.11 (1.70)		15.61 (1.73)	10.15***
Gender					
Male	753 (53.1)		4188 (50.0)		4.55*
Female	665 (46.9)		4181 (50.0)		
Marital status of mothers					
Married	785 (84.1)		5694 (76.2)		29.89***
Never married/other	148 (15.9)		1783 (23.8)		
Family structure					
Biological father in household	682 (74.3)		4357 (58.6)		83.89***
No father in household	236 (25.7)		3076 (41.4)		
Mother’s education					
Less than high school	113 (8.0)		814 (9.7)		191.25***
High school graduate	201 (14.2)		2484 (29.7)		
Trade school	384 (27.1)		1536 (18.4)		
Some college	302 (21.3)		1733 (20.7)		
College graduate or above	418 (29.5)		1802 (21.5)		
Annual household income (\$)		40,177.72 (21,140.99)		39,488.77 (24,467.12)	1.00

* $p < .05$, ** $p < .01$, *** $p < .001$

for 53.1% of the sample; and the mean annual household income was \$40,177.72 ($SD = 21,140.99$). Most Asian American respondents reported that their mothers were married (84.1%) and that their biological fathers lived in their households (74.3%). More than half (50.8%) of the respondents reported that their mothers had at least some college education. For NHW respondents, the mean age was 15.61 ($SD = 1.73$); males were 50.0% of the sample; and mean annual household income was \$39,488.77 ($SD = 24,467.12$). More than a third of the NHW adolescents reported that their mothers were married (76.2%), and 42.2% of the mothers had at least some college education. More than half of respondents (58.6%) reported that they lived with their biological fathers in their households. On average, the Asian American adolescents were older than the NHW youth ($t = 10.15, p < .001$) and were more likely to report that their mothers were married than their NHW counterparts ($\chi^2 = 29.89, p < .001$). Regarding family structure, Asian American youth were more likely to report that their biological fathers lived in their households ($\chi^2 = 83.89, p < .001$), and their mothers were more educated than those of their NHW counterparts ($\chi^2 = 191.25, p < .001$).

Group Mean Comparisons

Table 2 displays the group mean comparisons of depressive symptoms and suicidal ideation among the Asian American subgroups. In this table, a linear regression and a linear probability model were used to compare the four Asian American subgroups categorized by immigration status and primary language spoken at home. These tests were conducted to determine if any of the four Asian American subgroups could be merged due to trivial differences among them. There was no statistically significant group difference in depressive symptoms among the four Asian American subgroups. Regarding suicidal ideation, four statistically significant group differences were observed across time (two statistically significant Asian American subgroup differences when the Holm-modified Bonferroni test was applied): the probability of adolescent suicidal ideation was different between Asian American youth who were born in the U.S. and spoke English in the home (AA1) and Asian American youth who were born in the U.S. and spoke another language in the home (AA2) (19.2% and 9.0%, respectively; $t = 2.18, p < .05$). In addition, the probability of adolescent suicidal ideation was different between AA1 and Asian American youth who were not born in the U.S. and spoke another language in the home (AA4) (19.2% and 9.0%, respectively; $t = 3.10, p < .01$). The probability of early young adulthood suicidal ideation differed between AA1 and AA2 (10.1% and 2.0%, respectively; $t = 3.19, p < .01$); and the probability of young adulthood suicidal ideation also differed between AA1 and AA2 (9.5% and 1.0%, respectively; $t = 2.48,$

$p < .05$). These results indicate that Asian American youth who were U.S. born and spoke English at home differed from the other Asian American subgroups in suicidal ideation. Therefore, we decided to use two Asian American subgroups in the following analyses, namely, (1) (more acculturated) Asian American youth who were born in the U.S. and spoke English in the home during adolescence and (2) (less acculturated) all other Asian American youth.

Table 3 displays the results of the group mean comparisons for depressive symptoms and suicidal ideation during each major developmental period among the two Asian American subgroups and the NHW group. Regarding mean scores of depressive symptoms, there were three statistically significant group differences. One difference was observed in the mean scores of the occurrence of adolescent depressive symptoms between Asian American youth who were born in the U.S. and spoke English at home and the NHW youth (means = 0.74 and 0.62, respectively; $t = 2.93, p < .01$). Additional differences were observed in the mean scores for the occurrence of early young adulthood depressive symptoms between Asian American youth who were born in the U.S. and spoke English in the home and NHW youth (means = 0.61 and 0.47, respectively; $t = 3.12, p < .01$) and between all other Asian Americans and NHW youth (means = 0.57 and 0.47, respectively; $t = 2.18, p < .05$). Regarding suicidal ideation, three statistically significant group differences were found. These differences were observed between Asian American youth who were born in the U.S. and spoke English in the home and all other Asian Americans (18.3% and 9.7%, respectively; $t = 3.10, p < .01$); and between all other Asian Americans and NHW youth (9.7% and 14.2%, respectively; $t = 2.31, p < .05$). Additionally, the probability of young adulthood suicidal ideation differed among all other Asian Americans and European Americans (2.4% and 7.5%, respectively; $t = 3.47, p < .01$).

Discussion

This study investigated the effects of immigration and language factors on depressive symptoms and suicidal ideation among Asian American adolescents and young adults during three development periods. Additionally, this study explored the effects of ethnicity on depressive symptoms and suicidal ideation by comparing Asian American youth with NHW youth.

This study found that probabilities of suicidal ideation differed across Asian Americans subgroups. Asian Americans born in the U.S. who spoke English in the home reported higher probabilities of suicidal ideation than those in other categories. This study categorized two groups of acculturation parameters (more acculturated vs. less acculturated), one based on cross-classifying immigration status (U.S. born

Table 2 Group mean comparisons of depressive symptoms and suicidal ideation among Asian American subgroups by immigration and language factors (weighted)

Variable	Asian Americans U.S. born, English (AA1) ($n_1 = 449$)	Asian Americans U.S. born, non- English (AA2) ($n_2 = 138$)	Asian Americans foreign born, English (AA3) ($n_3 = 281$)	Asian Americans foreign born, non- English (AA4) ($n_4 = 377$)	AA1 versus AA2 versus AA3	AA1 versus AA4	AA2 versus AA3	AA2 versus AA4	AA3 versus AA4	
	Mean (%) ± SD	Mean (%) ± SD	Mean (%) ± SD	Mean (%) ± SD	<i>t</i>	<i>t</i>	<i>t</i>	<i>t</i>	<i>t</i>	
Adolescence										
Depressive symp- toms	0.70 ± 0.07	0.74 ± 0.14	0.75 ± 0.13	0.72 ± 0.08	0.65	0.48	0.11	0.29	0.49	
Suicidal ideation	19.2 ± 6.4	9.0 ± 4.0	14.5 ± 8.6	9.0 ± 4.0	2.18*	3.10*** ¹	0.89	0.06	1.06	
Early young adulthood										
Depressive symp- toms	0.57 ± 0.09	0.68 ± 0.17	0.52 ± 0.10	0.63 ± 0.12	1.15	1.00	1.62	0.46	1.60	
Suicidal ideation	10.1 ± 5.6	2.0 ± 2.5	7.3 ± 6.4	4.6 ± 4.3	3.19*** ¹	1.45	1.47	0.99	0.75	
Young adulthood										
Depressive symp- toms	0.89 ± 0.04	0.94 ± 0.12	0.89 ± 0.06	0.89 ± 0.06	0.72	0.07	0.63	0.75	0.14	
Suicidal ideation	9.5 ± 6.5	1.0 ± 1.7	3.5 ± 3.4	6.2 ± 6.1	2.48*	0.72	1.29	1.60	0.73	

Groups within a row with a common numerical superscript are statistically significantly different after controlling for the family-wise error rates with the Holm-modified Bonferroni test
* $p < .05$, ** $p < .01$, *** $p < .001$

Table 3 Group mean comparisons of depressive symptoms and suicidal ideation among two Asian American subgroups and non-Hispanic whites (weighted)

Variable	Asian Americans U.S. born, English ($n_1=449$)	All other Asian Americans ($n_2=796$)	Non-Hispanic Whites ($n_3=8369$)	Asian Americans U.S. born, English versus all other Asian Americans	Asian Americans U.S. born, English versus Non-His- panic Whites	All other Asian Americans ver- sus Non-Hispanic Whites
	Mean (%)±SD	Mean (%)±SD	Mean (%)±SD	<i>t</i>	<i>t</i>	<i>t</i>
Adolescence						
Depressive symp- toms	0.74±0.08	0.72±0.11	0.62±0.02	0.21	2.93** ^{.1}	1.86
Suicidal ideation	18.3±5.0	9.7±3.7	14.2±1.0	3.10** ^{.1}	1.56	2.31*
Early young adulthood						
Depressive symp- toms	0.61±0.09	0.57±0.09	0.47±0.02	0.59	3.12** ^{.1}	2.18*
Suicidal ideation	6.0±5.8	5.5±3.9	7.3±1.2	0.17	0.41	0.85
Young adulthood						
Depressive symp- toms	0.90±0.05	0.90±0.06	0.91±0.01	0.01	0.25	0.23
Suicidal ideation	11.7±9.2	2.4±2.7	7.5±1.0	1.95	0.89	3.47** ^{.1}

Covariates include age, sex, family structure, mother's marital status, mother's education, annual household income; groups within a row with a common numerical superscript are statistically significantly different after controlling for the family-wise error rates with the Holm-modified Bonferroni test

* $p < .05$, ** $p < .01$, *** $p < .001$

vs. foreign born) and the other based on primary language spoken in the home (English vs. non-English). The more acculturated group refers to Asian American youth who were born in the U.S. and spoke English in the home. The less acculturated group is all other Asian Americans consisting of (1) U.S. born individuals who speak a non-English language in the home, (2) foreign born individuals who speak English in the home, or (3) foreign born individuals who speak a non-English language in the home. Specifically, this study revealed that more acculturated Asian youth reported higher suicidal ideation than less acculturated Asian youth did.

This result supports previous findings that U.S. born Asian Americans were at higher risk of suicidal ideation compared with foreign born Asian Americans (Delgado et al. 2011; Kuroki 2015). One possible explanation for this finding is that more acculturated youth may have more opportunities to interact with mainstream society, which results in greater stress from acculturation experiences and ultimately negatively impacts their mental health (Kuroki 2015). Another possible explanation is that the norm of expressing one's personal feeling differed among these subgroups (Eid and Diener 2001). The more acculturated that Asian youth are, the more expressive they might be in articulating their feelings of emotional crisis such as suicidal ideation. A further explanation could be considered: as Asian culture values group harmony, and as expressing negative thoughts such as suicidal ideation affects group harmony negatively, Asians are discouraged from expressing such

suicidal feelings (Kramer et al. 2002; Tewari and Alvarez 2009). These three possible explanations discussed above are not mutually exclusive, other explanations are possible, and the overall explanation may be a combination of these possible explanations.

Additionally, significant differences in the probability of suicidal ideation between Asian American subgroups were found only during the adolescence period. While the development of self-identity during adolescence is a fundamental task (Erikson 1968), more acculturated Asian American adolescents may experience more frequent confusion of identity development compared to their less acculturated Asian American counterparts. They may experience an identity clash between Asian ethnicity and American citizenship. The more acculturated Asian American youth are more likely to consider themselves Americans because they were born in the U.S. and, therefore, may adopt American norms and values; however, they may not only feel that they are fully accepted by mainstream society but also perceive themselves to be foreign due to a marginalized racial and ethnic identity.

This study showed that depressive symptoms were more common among Asian American youth than NHW youth. These results are consistent with previous studies, which found that Asian Americans reported higher levels of depressive symptoms compared to NHW youth (Choi et al. 2006; Mak et al. 2011; Song et al. 2011). In addition, these mean differences in depressive symptoms were statistically significant in the phases of adolescence and early

young adulthood, but not in young adulthood. There are three possible explanations for these findings. First, Asian Americans' cultural values emphasize education as their life goal and can lead them to become a 'model minority' in American society (Wong et al. 1998). However, this myth puts them under pressure to outperform in academic settings and contributes to increased depressive symptoms. Second, due to the cultural stereotype of being a model minority, Asian American adolescents are often perceived as 'nerds' (Qin et al. 2008). This negative image of Asian American youth in the American culture implies that Asian Americans are not attractive to peers, which leads to an unhealthy self-image and depressive symptoms. Third, ethnic minority youth may be more frequently exposed to various types of prejudice and discrimination due to their race, ethnicity, and/or immigration status, which exposes them to emotional distress, ultimately impacting mental health outcomes (Kim et al. 2011; Romero et al. 2007). One study reported that Asian American adolescents were harassed by their peers due to different physical size and foreign accents (Qin et al. 2008). Notably, the three mentioned explanations do not necessarily cover all explanations of why Asian American adolescents reported higher levels of depressive symptoms than NHW youth. In addition, this finding is not limited to a single explanation of the three explanations and can be understood as a combination of the three explanations.

In contrast to the observations for depressive symptoms, NHW youth reported higher probabilities of suicidal ideation than other Asian American youth, the less acculturated group. These findings are contradictory to previous studies that found higher rates of suicidal ideation or suicidal attempts for Asian American youth compared to NHW youth (Kisch et al. 2005; Vander Stoep et al. 2009). A possible explanation is a reluctance among Asian Americans to self-disclose suicidal ideation. One study found that Asian Americans were less likely to disclose their suicidal ideations than NHW and referred to Asian Americans as 'hidden ideators' (Morrison and Downey 2000). This indicates that Asian American youth who conceal their suicidal thoughts are at risk of being suicidal or attempting suicide because it is an obvious sign of suicide to speak about dying or harming oneself. Future studies are warranted to investigate the relationship between suicidal ideation and suicide attempts among Asian Americans and to clarify the effect of ethnicity and other related risk factors on mental health outcomes.

Our study has several limitations. First, this study used immigration status and language spoken at home as proxy measures of acculturation because there were no multidimensional measures of acculturation in the Add Health. It would be beneficial to measure the magnitude or levels of acculturation among Asian American youth if future studies use multidimensional measurements of acculturation including age at immigration, immigrant generation, and orientation of

cultural values. Second, a single item was used to measure suicidal ideation because a multi-item scale was not available in the Add Health data. This may cause methodological issues such as statistical errors and misspecification. Third, the sample sizes of the Asian American subgroups were relatively smaller than that of the NHW group. Although Add Health is a nationally representative study with a relatively large number of Asian American youth, study results should be interpreted with caution because the smaller sample sizes may affect the statistical power and the reliability of parameter estimates. Fourth, of the Wave I sample, the response rates at Waves III and IV were 73.1% and 75.7%, respectively (Harris 2013). Although these rates are relatively higher than the rates in other national longitudinal studies, such as National Survey of Families and Households (NSFH) in 2001–2003 with a 55% response rate, the sample attrition between waves can render the results less statistically meaningful and significant. Fifth, this study treated all Asian Americans (i.e., Korean Americans and Chinese Americans) as a single ethnic group without considering their distinct cultures and ethnic identities. Thus, these findings may be limited to a specific ethnic group of Asian Americans. Finally, there is a limitation in this study that three Asian American subgroups (AA2–4) were combined into an aggregated group referred to as "less acculturated," which might mask the possible differences in mental health outcomes among Asian American subgroups defined by immigration status and language spoken at home. Future studies are needed to disentangle the differential impact of specific immigration status and language factors on mental health outcomes.

This study has implications for mental health practice. Given that immigration and language factors were associated with mental health outcomes in Asian Americans, mental health practitioners need to pay attention to within-group differences in these factors when assessing depressive symptoms and suicidal ideation. In particular, mental health practitioners can ask Asian American adolescents about their immigration status and language spoken at home as a measure for understanding the risk associated with their mental health status. Furthermore, suicide-related prevention and intervention are needed for the more acculturated Asian American subgroup given their higher probability of suicidal ideation. Mental health professionals should provide effective mental health interventions and programs for early detection, including culturally tailored mental health services responding to the needs of Asian American youth.

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