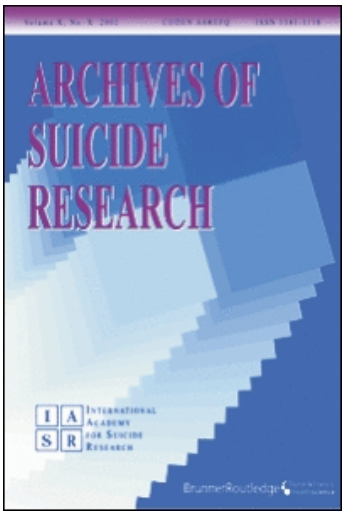

Archives of Suicide Research
Publication details, including instructions for authors and subscription information:
http://www.informaworld.com/smpp/title~content=t713667420

Correlates of Suicidal Behaviors Among Asian Americans

Aileen Alfonso Duldulao [a]; David T. Takeuchi [a]; Seunghye Hong [a]
[a] University of Washington School of Social Work, Seattle, Washington, USA

Online Publication Date: 01 July 2009

To cite this Article Duldulao, Aileen Alfonso, Takeuchi, David T. and Hong, Seunghye(2009)'Correlates of Suicidal Behaviors Among Asian Americans',Archives of Suicide Research,13:3,277 — 290
To link to this Article: DOI: 10.1080/13811110903044567
URL: http://dx.doi.org/10.1080/13811110903044567

Archives of Suicide Research, 13:277–290, 2009

ISSN: 1381-1118 print/1543-6136 online
DOI: 10.1080/13811110903044567

Routledge
Taylor & Francis Group

Correlates of Suicidal Behaviors Among Asian Americans

Aileen Alfonso Duldulao, David T. Takeuchi, and Seunghye Hong

This study examines the correlates of suicidal ideation, suicide plan and suicide attempt among Asian Americans focusing on nativity and gender. Analyses are performed on data from the National Latino and Asian American Study (N = 2095), the first ever study conducted on the mental health of a national sample of Asian Americans. The sample is comprised of adults with 998 men (47%) and 1,097 (53%) women. Analysis of weighted lifetime prevalence of suicidal behaviors revealed that U.S.-born Asian American women had higher prevelance of suicidal ideation and suicide plan than U.S.-born Asian American men and immigrant Asian American men and women. In multivariate analyses controlling for socio-demographic differences such as ethnicity, marital status and income, differences in suicidal behaviors are found only between U.S.-born women and U.S.-born men. The findings demonstrate the need to disaggregate data by immigrant status as well as socio-demographic correlates.

Keywords Asian Americans, Asians, immigrants, suicide

Suicide is the ninth leading cause of death among Asian Pacific Islanders with 726 persons completing suicide in 2005 (Centers for Disease Control, 2005). Despite the rapid emergence of Asian Americans in different communities across this country, there is surprisingly little empirical epidemiological evidence about the correlates of suicide in this population (Leong, Leach, Yeh et al., 2007; Noh, 2007). While research on the general population has shown strong linkages between socio-demographic factors and suicidal behaviors, prior studies have either omitted Asian Americans from the analyses, have included very small samples of Asian Americans, or have failed to disaggregate Asian Americans by socio-demographic factors, especially nativity (Kessler, Berglund, Borges et al., 2005; Kessler, Borges, & Walters, 1999). Nativity or immigration status (U.S.-born or immigrant) has been shown to be an important factor in determining risk for suicidal behaviors and for completed suicide in ethnic populations with a high proportion of foreign-born (Hovey & King, 1997; Kushner, 1984; Sorensen & Shen, 1996; Wadsworth & Kubrin, 2007). Since 68% of Asian Americans are foreign-born, immigration status may be a critical factor to study in investigating the risk for suicidal behaviors among Asian Americans (Lai & Arguelles, 2003). This article examines the correlates of suicidal ideation, suicide plan and suicide attempt among Asian American adults focusing on differences between immigrant and U.S.-born Asian Americans. Analyses are performed on data

from the National Latino and Asian American Study, the first ever study conducted on the mental health of a national sample of Asian Americans.

Completed Suicide and Suicidal Behaviors among Asian Americans

Existing data of completed suicide and suicidal behaviors among Asian Americans has provided a complex, mixed picture about suicide risk in this community. This complexity is largely due to the tremendous diversity among Asian Americans. The term "Asian American" encompasses over 16 ethnic groups and reflects over twice as many languages (Lai & Arguelles, 2003). Some of these ethnic groups, such as the Chinese Americans and Japanese Americans, have a long history of immigration and settlement in the United States beginning in the 19th century. Other Asian American groups, such as Vietnamese Americans and Cambodian Americans, arrived in the United States largely as refugees only in the last few decades (Chan, 1991; Takaki, 1989).

Overall rates for completed suicide among Asian Americans have reflected lower or similar rates compared with other ethnic groups. According to the Centers for Disease Control, in 2005 the age-adjusted rate for completed suicide among Asian Americans of all age groups was 5.24 deaths per 100,000. While this rate is lower than that of White non-Hispanics (12.93 per 100,000), it is similar to the rates for Black non-Hispanics (5.37 per 100,000) and Hispanics (5.60 per 100,000) (Centers for Disease Control, 2005). In an early study of Chinese Americans in San Francisco, Bourne (1973) found that the mean incident rate of completed suicide for Chinese Americans from 1952–1968 was 27.9 per 100,000, similar to the mean rate of 27.5 per 100,000 for the entire population of San Francisco during the same period. Lester (1994) also found that in 1980 rates for completed suicide among different Asian American groups were lower than the rate for Whites (13.2 per 100,000). It is unknown if rates of completed suicide among Asian Americans reflect rates of suicidal behaviors given the paucity of studies on suicidal behaviors in this population. In one study, Kisch, Leino, and Silverman (2005) examined data from the National College Health Assessment Survey and found that Asian American students were more likely (OR = 1.591, CI = 1.275, 1.985) than White students to attempt suicide. Yet in 2005, the national rate for completed suicide among Asian Americans was lower than that among Whites (Centers for Disease Control, 2005).

Differences in rates of completed suicide have also been found when Asian Americans are disaggregated by ethnicity, age and gender. Lester (1994) found that the rate of completed suicide among Asian American ethnic groups in 1980 was higher among Japanese Americans (9.1 per 100,000) compared to Chinese Americans (8.3 per 100,000) and Filipino Americans (3.5 per 100,000). When age is considered, Bourne (1973) found that from 1960–1968 the average rate of completed suicide for Chinese Americans over the age of 55 years old (55 per 100,000) was much higher than the average rate (30 per 100,000) for the general population during this same period. Bourne also found that during this period of time rates for completed suicide among Chinese American women increased with age and that Chinese American men between the ages of 70 and 74 years had the highest rate (89.9 per 100,000) of completed suicide among all Chinese American age groups. Shiang, Blinn, Bongar et al. (1997) also found that the national rate for completed suicide among all Asian American women was 3.4 per 100,000, but the rates were highest (29.8 per 100,000) for Asian women 85 years and older. Shiang's study also found that completed suicide rates were highest among Asian American men

between the ages of 75 and 84 years (42.1 per 100,000), over four times the rate for Asian American men overall (8.8 per 100,000).

Immigration status has been shown to be an important risk as well as protective factor for suicide across immigrant groups (Kposowa, McElvain & Breault, 2008; Lester, 1997; Stack, 1981). While there are very few empirical studies that have examined the relationship between immigration and suicide among adult Asian Americans, studies of Asian American adolescents and Asian immigrant populations in other countries reflect mixed results (Crawford, Nur, McKenzie et al., 2005; Kennedy, Parhar, Samra et al., 2005; Lau, Jernewall, Zane et al., 2002; Leong, Leach, Yeh et al., 2007). In a study of Asian American adolescents who lived predominantly in immigrant families, Lau, Jernewall, Zane et al. (2002) found that higher risk of suicidal behaviors could be found among less acculturated youth in families with high parent-child conflict compared to youth that were more acculturated. A study of Chinese immigrants in Canada found that suicidal ideation, plans and attempts did not differ by immigration status (Kennedy, Parhar, Samra et al., 2005). Crawford, Nur, McKenzie et al. (2005) found that Indians, Pakistanis, and Bangladeshis who were born in the United Kingdom or were less than 11 years old at the time of migration were more likely to have suicidal thoughts than those born outside of the United Kingdom.

Scholars posit a link between immigrant status and suicidal behaviors due to the lack of social integration, low assimilation, and high stress that often accompanies the immigrant experience (Hovey, 2000; Kposawa, McElvain, Breault et al., 2008; Stack, 1981). Positive relationships have been found between immigrant status and completed suicide, while the relationship between immigrant status and suicidal behaviors is less clear (Lester, 1989; Stack, 1981; Trovato, 1986). The causal link between suicidal behaviors and immigrant status is based on Durkheim's theories about the relationship between social integration and suicide (Hovey & King, 1997; Wadsworth & Kubrin, 2007). Experiencing a state of "anomie," immigrants to the United States are forced to leave behind familiar customs, norms and relationships in their home country (Hovey & King, 1997). Immigrants often find themselves under pressure to culturally, socially, linguistically and economically assimilate and integrate into American society, often at a demanding and rapid pace that can result in high levels of stress (Hovey & King, 1997; Kushner, 1989; Sorensen & Shen, 1996). This stress, especially when accompanied by limited emotional and economic support, can contribute to increased risk for suicide. As a result, immigrants who have low levels of assimilation and social integration are thought to be more prone to suicidal behaviors (Wadsworth & Kubrin, 2007). Lack of social integration among immigrants has also been linked to low social and cultural capital and subsequent economic disadvantage, which in turn may increase feelings of despair and hopelessness and risk for suicidal behaviors (Sorensen & Shen, 1996).

Immigrants have also been posited to have lower risk for suicidal behaviors than native-born Americans. According to the "healthy immigrant thesis," immigrants should commit suicide less because they are generally above-average in mental and physical health (Sorenson & Shen, 1996). The impact of economic and social disadvantage may not be as salient for immigrants since they may come from a lower socio-economic position than the one they have in the United States. The "healthy immigrant thesis" has been largely demonstrated in other immigrant ethnic groups. For example, Mexican Americans born in Mexico had lower age and gender adjusted lifetime rates of suicidal ideation (4.5%)

than Mexican Americans born in the United States (13%) (Sorenson & Golding, 1988a, b). Mexican American immigrants were also found to have lower adjusted rates for suicide attempt (1.6%) than Mexican Americans born in the United States (4.8%). In a national study of Latino Americans, Fortuna, Perez, Canino et al. (2007) found that Latinos born in the United States with one or more U.S.-born parents were more likely (OR = 1.7, CI = 1.1, 2.8) than Latinos who immigrated to the United States over the age of 7 to have suicidal ideation. In a study of Latino adolescents in the United States, U.S.-born Latinos with immigrant parents were over twice as likely (OR = 2.87, CI = 1.34, 6.14) than Latinos born outside of the United States to attempt suicide (Peña et al., 2008). Suicidal behaviors have also been linked to other socio-demographic characteristics that reflect problematic social integration. Suicidal behaviors have been positively associated with a lack of familial and friend support, marital status, parenthood, family conflict and income in addition to psychopathology (Goldsmith, 2002; Kposowa, McElvain, & Breault, 2008, Kushner, 1984; Lau, Jernewall, Zane et al., 2002).

From past studies, it is unclear if immigration status is a risk factor or protective factor for suicidal behaviors among Asian Americans and if the effect of immigrant status will be significant in light of other variables that reflect the lack of social integration. The relationship between immigration status and suicidal behaviors appears to vary by Asian ethnicity and country of settlement. Yet given that the majority of the Asian American population in the United States is foreign born, it is likely that immigrant status will play an important and salient role in suicidal behaviors in this population.

This article provides an examination of suicidal behaviors among Asian Americans from a large-scale national study. Since the research literature shows mixed results on this issue, we test whether immigrant or U.S.-born Asian Americans are more likely to have suicidal ideation, suicide plans, and suicide attempts. We also examine some of the socio-demographic correlates associated with suicidal behaviors.

METHODS

Data for this study uses the Asian American sample (N = 2095) from the National Latino and Asian American Study (NLAAS) conducted between May 2002 and November 2003. The sample is comprised of adult Asian Americans over the age of 18 and living in the United States, including the District of Colombia. Asian Americans of Chinese, Filipino, and Vietnamese ethnicities were targeted, although the sample also included smaller numbers of Asian Americans of other ethnicities such as Korean, Japanese, and Thai.

Interviews were conducted by bilingual interviewers. Informed consent was obtained for all respondents. In-person interviews were conducted with primary respondents unless such an interview was not possible or if the respondent requested a telephone interview. Telephone interviews were conducted with secondary respondents. The weighted response rate for the entire sample was 65.6%.

The NLAAS is part of the Collaborative Psychiatric Epidemiological Studies (CPES). The CPES also included the National Comorbidity Survey Replication (NCS-R) and the National Survey of American Life which measured mental disorders in national samples of ethnically diverse adults.

Sampling Design

The sampling design of the NLAAS consisted of three stages (Alegria, Takeuchi, Canino et al., 2004). The first

stage involved core sampling of primary and secondary sampling units from which housing units and household members were sampled. The second stage involved high-density supplemental sampling. During this stage, census block groups with more than 5% density of target Latino (Cuban, Mexican, Puerto Rican) and Asian (Chinese, Filipino, Vietnamese) groups were oversampled. Household members who did not belong to the specific target groups were eligible to participate in the study. Individuals in these high-density areas had two opportunities to participate in the study, through the core sampling strategy and through the high-density sampling strategy. Finally, secondary individuals were recruited from households where one eligible member had completed the interview. Data was weighted to correct for joint probabilities of selection according to the sampling design. While three Asian American groups (Chinese, Filipino, and Vietnamese) were targeted for the NLAAS, Asian Americans of other ancestry were also included. In total, the Asian American sample consisted of 1611 primary individuals and 484 secondary individuals. Further detailed description of the NLAAS protocol and sampling design has been documented in earlier publications (Alegria, Takeuchi, Canino et al., 2004; Heeringa, Wagner, Torres et al., 2004; Pennell, Bowers, Carr et al., 2004).

Instrument and Measures

Suicidal behaviors are measured using a modified version of the World Mental Health (WMH) Composite International Diagnostic Interview (CIDI), a structured diagnostic interview used to produce diagnoses based on the World Health Organization International Classification of Diseases (WHO-ICD) and the Diagnostic and Statistical Manual IV (DSM-IV). The WMH-CIDI has been used in 28 countries and shows good reliability and validity (Kessler & Ustun, 2004; Wittchen, 1994). Studies have shown a high correlation between diagnoses based on the CIDI and diagnoses made by clinicians (Pennell, Bowers, Carr et al., 2004).

Suicidal Behaviors

The measure for suicidal behaviors of the NLAAS instrument consisted of 17 questions. The questions assessed whether individuals had ever experienced suicidal thoughts, plans, attempts and gestures and the age of first onset. Given the sensitive nature of suicidality, individuals were asked to read statements from a booklet describing suicidal behaviors and were then asked verbally by the interviewer whether they had had the experience listed. These experiences were listed as "You seriously thought about committing suicide," "You made a plan for committing suicide," and "You attempted suicide." Individuals unable to read were verbally asked the questions by the interviewer.

Individuals were asked if they had seriously thought about committing suicide, and if so, how old they were the first and last time they had suicidal thoughts and if they had suicidal thoughts in the last 12 months. If an individual indicated that they had suicidal thoughts they were then asked if they had ever made a plan for committing suicide, and if so, how old they were the first and last time they had made a suicide plan and if they had made a plan in the last 12 months. Individuals who reported having made a suicide plan were asked if they had ever attempted suicide, and if so, how old they were the first and last time they had ever attempted suicide and the number of times they had attempted suicide during the last 12 months and in their lifetime. Individuals who reported having attempted suicide in their lifetime were then asked to assess the seriousness

and lethality of that attempt by determining which statement among the following best described their attempt: "I made a serious attempt to kill myself and it was only luck that I did not succeed," "I tried to kill myself, but knew that the method was not fool-proof," and "My attempt was a cry for help, I did not intend to die." Individuals who indicated the third statement were considered to have made a suicide gesture rather than a suicide attempt.

Socio-demographic Characteristics and Nativity

The socio-demographic variables used for this study consisted of age, sex, income, marital status, years of education, nativity, and number of years in the United States. Ethnicity was based on a self-report of membership in an Asian American group and was categorized as Chinese, Filipino, Vietnamese, and other Asian. The other Asian category included individuals who self-identified as Japanese, Korean, Asian, Indian, and other Asian ethnicities. Age, sex, income, marital status, and years of education were also based on individual self-reports. For nativity, individuals who self-reported being born in the United States were coded as "U.S. born" and those born outside of the United States were coded as "foreign born."

Analyses were conducted using SAS 9.1 in conjuction with SAS-callable SUDAAN. Unlike SAS, SUDAAN is able to provide reliable estimates for multistage, stratified clustered samples (Research Triangle Institute, 2001). Prior to analyses, the data was stratified by sex and immigration status in order to test for differences among men and women, immigrants and non-immigrants, and male and female immigrants and non-immigrants. Weighted prevalences for each behavior by sex, immigration status and socio-demographic characteristics were obtained through SUDAAN. Pearson chi-square tests were used to determine if group differences were significant. A bivariate and simultaneous-entry multiple logistic regression model was run for each suicide behavior. The bivariate model shows differences by sex and immigration status. The multivariate model examines sex and immigration status controlling for several socio-demographic variables.

RESULTS

Table 1 shows the sample characteristics for the respondents. The NLAAS sample (N = 2095) is composed of mostly immigrant Asian American men (35.8%) and women (41.2%), with similar numbers of U.S.-born women (11.4%) and U.S.-born men (11.6%). The average age of respondents is approximately 41 years old. Chinese respondents (28.6%) comprise the largest Asian American ethnic group, followed by Filipinos (21.6%) and Vietnamese (12.9%). The majority of respondents indicate that they are currently married (65.4%) or had been widowed, separated or divorced (9.6%). One-quarter of the sample has never been married (25.1%). Respondents are highly educated, with most having a college degree (42%) or some college (25.3%). Income levels are also high, with most respondents earning $75,000 per year or higher (45.2%).

Table 2 reflects the overall percentages for the different suicidal behaviors: suicidal thoughts 8.6% (SE = 0.8%), suicide plan 3.3% (SE = 0.53%) and suicide attempt 2.5% (SE = 0.3%). There are no statistically significant differences found in ideation or plan between Asian American men and women. Asian Americans who were born in the United States have higher percentage of ideation (12.2%) than immigrant Asian Americans (7.5%). The percentage of people who report suicide ideation increases the longer they are in the United States.

TABLE 1. **Sample Characteristics: National Latino and Asian American Study (N = 2095)**

	Unweighted N	Weighted percentage/ mean	SE
Sex and nativity			
U.S.-born women	228	11.44	2.02%
Immigrant women	868	41.19	2.16%
U.S.-born men	226	11.62	1.36%
Immigrant men	771	35.75	1.60%
Ethnicity			
Chinese	600	28.69	2.66%
Vietnamese	520	12.93	2.09%
Filipino	508	21.59	2.32%
Other Asian	467	36.79	2.34%
Marital status			
Widowed/ separated/ divorced	205	9.56	1.02%
Married	1376	65.39	2.01%
Never married	512	25.05	1.53%
Age	2095	41.33	0.88
Education			
<11 years	316	15.5	1.50%
12 years	371	17.64	1.16%
13–15 years	529	25.26	1.46%
16+ years	878	41.96	1.93%
Income (in $)			
0–14,999	297	14.33%	1.15%
15,000–34,999	297	11.96%	0.78%
35,000–74,999	583	28.51%	1.79%
75,000+	918	45.19%	1.90%
Years in U.S.			
U.S. born	454	23.06%	3.16%
0–5	303	14.19%	1.86%
6–10	300	12.06%	1.09%
11–20	532	26.45%	1.68%
21+	504	24.24%	1.34%

Significant differences in lifetime prevalence are found among all three behaviors across age groups and marital status. Asian American between the ages of 18–34 have the highest rates of ideation (11.9%), planning (4.4%) and attempt (3.8%) compared to other age groups. Significant differences are also found across marital status with Asian Americans who were never married having the highest lifetime prevalence of ideation (17.9%), planning (7.6%) and attempt (5.0%).

In Table 3, we present the odds ratios for the different nativity and gender groups for each suicidal behavior. Compared to U.S.-born women, U.S.-born men (OR = 0.49, CI = 0.29, 0.85), immigrant men (OR = 0.40, CI = 0.23, 0.69) and immigrant women (OR = 0.45, CI = 0.27, 0.77) are less likely to have suicidal thoughts. Immigrant women (OR = 0.33, CI = 0.12, 0.87) and U.S.-born men (OR = 0.28, CI = 0.09, 0.84) are also less likely to formulate a suicide plan than U.S.-born women. U.S.-born women are more likely than U.S.-born men (OR = 0.21, CI = 0.05, 0.89) and immigrant men (OR = 0.24, CI = 0.08, 0.67) to attempt suicide. Significant differences are not found in the formulation of a suicide plan between U.S.-born women and immigrant men and in suicide attempt between U.S.-born women and immigrant women.

In Table 4 we present a multivariate model that examines each suicidal behavior with the gender-nativity combination controlling for socio-demographic variables. U.S.-born men are almost half as likely (OR = 0.55, CI = 0.32, 0.96) as U.S.-born women to have suicidal thoughts, controlling for ethnicity, marital status, age, education and income. Differences are not found among U.S.-born women and U.S.-born men in likelihood of formulating a suicide plan or attempting suicide. There are also no differences found in suicidal behaviors of U.S.-born women compared to immigrant men and women. Very

TABLE 2. **Weighted Lifetime Prevalence for Suicidal Behaviors: National Latino and Asian American Study (N = 2095)**

	Suicide ideation	SE	Suicide plan	SE	Suicide attempt	SE
Overall	8.58%	0.83	3.31%	0.53	2.54%	0.34
Sex						
Women	9.66%	1.06	3.46%	0.68	3.47%	0.67
Men	7.39%	1.11	3.15%	0.93	1.52%	0.36
$\mathbf{X}^2$	3.17, $p = 0.0841$		0.07, $p = 0.7955$		5.49, $p = 0.0254$	
Nativity						
U.S.-born	12.20%	2.02	4.61%	1.47	3.82%	1.38
Immigrant	7.51%	0.79	2.93%	0.41	2.17%	0.34
$\mathbf{X}^2$	4.87, $p = 0.0344$		1.62, $p = 0.2114$		1.09, $p = 0.3048$	
Sex and nativity						
U.S.-born women	15.93%	3.04	7.14%	2.44	6.29%	2.26
Immigrant women	7.92%	0.98	2.45%	0.69	2.69%	0.61
U.S.-born men	8.53%	1.94	2.13%	1.16	1.38%	1.05
Immigrant men	7.05%	1.27	3.49%	0.97	1.57%	0.40
$\mathbf{X}^2$	3.30, $p = 0.0323$		2.99, $p = 0.0449$		2.01, $p = 0.1316$	
Age						
18–34 years	11.90%	1.57	4.38%	0.81	3.82%	0.67
35–49 years	7.73%	1.45	4.06%	1.35	2.12%	0.49
50–64 years	5.39%	0.97	1.18%	0.38	1.58%	0.53
65+ years	4.15%	1.83	0.63%	0.65	0.68%	0.59
$\mathbf{X}^2$	4.27, $p = 0.0118$		5.28, $p = 0.0044$		8.77, $p = 0.0002$	
Ethnicity						
Chinese	10.09%	1.22	3.29%	0.56	1.70%	0.59
Vietnamese	6.53%	1.28	1.46%	0.66	2.44%	0.79
Filipino	9.76%	1.95	3.78%	1.10	3.12%	0.55
Other Asian	7.43%	1.32	3.72%	1.03	2.46%	0.54
$\mathbf{X}^2$	1.33, $p = 0.2818$		1.17, $p = 0.3362$		1.46, $p = 0.2426$	
Marital status						
Widowed/separated/ divorced	10.09%	2.82	1.43%	0.52	3.01%	0.89
Married	4.78%	0.57	1.94%	0.29	1.55%	0.22
Never married	17.94%	3.04	7.62%	1.97	4.97%	1.08
$\mathbf{X}^2$	10.81, $p = 0.0002$		4.79, $p = 0.0149$		10.13, $p = 0.0004$	
Education						
<11 years	5.73%	1.54	3.06%	1.37	1.47%	1.07
12 years	7.68%	1.23	2.12%	0.53	2.93%	0.58
13–15 years	10.8%	2.04	3.75%	1.18	3.61%	1.03
16+ years	8.66%	1.36	3.64%	1.17	2.13%	0.48
$\mathbf{X}^2$	0.998, $p = 0.4060$		0.73, $p = 0.5404$		1.47, $p = 0.2419$	

(*Continued*)

TABLE 2. **Continued**

	Suicide ideation	SE	Suicide plan	SE	Suicide attempt	SE
Income (in $)						
0–14,999	12.2%	2.12	5.82%	1.75	3.91%	0.83
15,000–34,999	11.18%	1.91	3.87%	1.35	4.27%	1.39
35,000–74,999	7.07%	1.25	1.94%	0.61	1.77%	0.61
75,000+	7.18%	0.91	2.96%	0.58	1.90%	0.48
$\mathbf{X}^2$	2.85, $p = 0.0523$		5.55, $p = 0.0034$		5.33, $p = 0.0042$	
Years in U.S.						
U.S. born	12.20%	2.02	4.61%	1.47	3.82%	1.38
0–5	6.04%	1.66	1.37%	0.73	1.07%	0.63
6–10	6.44%	2.25	3.91%	2.36	1.43%	0.66
11–20	7.93%	1.36	3.75%	1.07	2.85%	0.68
21+	8.46%	1.47	2.47%	0.54	2.43%	0.57
$\mathbf{X}^2$	4.17, $p = 0.0076$		2.83, $p = 0.0403$		2.60, $p = 0.0538$	

low-income (less than $15,000 annually) Asian Americans are more than twice as likely (OR = 2.18, CI = 1.08, 4.43) to attempt suicide than Asian Americans with high incomes ($75,000 annually or more).

DISCUSSION

The findings of this study reflect the pressing need to disaggregate data on suicidal behaviors among Asian Americans by both socio-demographic characteristics and immigration status. While the overall lifetime percentages for ideation (8.6%) and attempt (2.5%) among Asian Americans are lower than national lifetime estimates for all Americans (13.5% and 4.6%, respectively) (Kessler, 1999), a very different finding is evident when Asian Americans are disaggregated by sex and nativity. U.S.-born Asian American women (15.9%) have much higher percentage for ideation than the national estimates.

Accordingly, U.S.-born Asian American women are the group that appears to be most at-risk for suicidal behaviors. While immigrant men and women appear to be less at-risk for suicidal behaviors than their U.S.-born counterparts, it is unclear what factors contribute to this difference. Asian American immigrant men and women may be highly assimilated and acculturated into American society, resulting in higher levels of social integration and lower levels of anomie or social stress. In addition, the phenomenon of the "healthy immigrant," found previously among Mexican Americans and Latino Americans, might apply to Asian American immigrants as well. Foreign-born Asian Americans may be healthier, on average, than U.S.-born Asian American men and women due to the selectivity of immigration, particularly in the context of the post-1965 immigration influx of highly educated Asian professionals. Future studies examining suicidal behaviors among U.S.-born and immigrant Asian Americans should explore what specific aspects of the immigrant experience may be protective against suicidal behaviors.

The high risk of U.S.-born Asian American women for suicidal ideation and suicide attempts reflects the findings of prior studies of Asian American women in general, but demonstrates the need to examine the impact of immigration status among

TABLE 3. **Bivariate Logistic Regression Comparing Suicidal Thoughts, Suicide Plan and Suicide Attempt by Sex and Nativity**

	Suicidal thoughts			Suicide plan			Suicide attempt		
	Beta coeff	**p-value**	**OR (95% CI)**	**Beta coeff**	**p-value**	**OR (95% CI)**	**Beta coeff**	**p-value**	**OR (95% CI)**
Sex and nativity									
U.S.-born Women		Referent			Referent			Referent	
Immigrant Women	−0.79	0.0047	0.45	−1.12	0.0263	0.33	−0.89	0.0618	0.14
			(0.27, 0.77)			(0.12, 0.87)			(0.16, 1.05)
US-born Men	−0.71	0.0118	0.49	−1.26	0.0247	0.28	−1.56	0.0349	0.21
			(0.29, 0.85)			(0.09, 0.84)			(0.05, 0.89)
Immigrant Men	−0.92	0.0018	0.40	−0.75	0.0535	0.47	−1.44	0.0081	0.24
			(0.23, 0.69)			(0.22, 1.01)			(0.08, 0.67)

TABLE 4. **Multiple Logistic Regression Predicting Suicidal Behaviors by Sex, Nativity, and Socio-Demographics**

	Suicidal thoughts			Suicide plan			Suicide attempt		
	Beta coeff	**p-value**	**OR (95% CI)**	**Beta coeff**	**p-value**	**OR (95% CI)**	**Beta coeff**	**p-value**	**OR (95% CI)**
Sex and nativity									
U.S.-born women		Referent			Referent			Referent	
Immigrant women	−0.30	0.2292	0.74 (0.45,1.22)	−0.68	0.1782	0.51 (0.19, 1.39)	−0.43	0.4430	0.65 (0.21, 2.02)
U.S.-born men	−0.60	0.0366	0.55 (0.32, 0.96)	−1.12	0.0554	0.64 (0.31, 1.33)	−1.45	0.0570	0.23 (0.05, 1.05)
Immigrant men	−0.52	0.0678	0.60 (0.34, 1.04)	−0.44	0.2228	0.33 (0.10, 1.03)	−1.04	0.0709	0.35 (0.11, 1.10)
Ethnicity									
Chinese		Referent			Referent			Referent	
Vietnamese	−0.43	0.1438	0.65 (0.37, 1.17)	−0.88	0.1832	0.42 (0.11, 1.55)	−0.71	0.1040	0.49 (0.21, 1.17)
Filipino	−0.13	0.5248	0.87 (0.57, 1.34)	0.20	0.5536	1.22 (0.62, 2.41)	−0.37	0.0930	0.69 (0.45, 1.07)
Other Asian	−0.47	0.0579	0.63 (0.39, 1.02)	0.06	0.8322	1.06 (0.59, 1.92)	−0.35	0.3493	0.71 (0.34, 1.49)
Marital status									
Widowed/separated/divorced		Referent			Referent			Referent	
Married	−0.72	0.0530	0.49 (0.23, 1.01)	0.26	0.5360	1.30 (0.56, 3.03)	−0.47	0.2960	0.63 (0.26, 1.54)
Never married	0.65	0.2467	1.91 (0.63, 5.81)	1.72	0.0179	5.60 (1.37, 22.84)	0.24	0.7068	1.27 (0.35, 4.54)
Age									
18–34 years		Referent			Referent			Referent	
35–49 years	0.21	0.5745	1.23 (0.58, 2.61)	0.86	0.2418	2.36 (0.54, 10.27)	−0.22	0.6674	0.80 (0.29, 2.23)
50–64 years	−0.12	0.7668	0.89 (0.39, 2.01)	−0.27	0.6316	0.76 (0.24, 2.40)	−0.52	0.3254	0.59 (0.21, 1.72)
65+ years	−0.60	0.2524	0.55 (0.19, 1.56)	−1.19	0.2748	0.31 (0.03, 2.68)	−1.71	0.0534	0.18 (0.03, 1.03)
Education									
<11 years	−0.28	0.4515	0.76 (0.36, 1.60)	0.26	0.7045	1.30 (0.32, 5.30)	−0.29	0.7458	0.75 (0.13, 4.50)
12 years	−0.24	0.2864	0.79 (0.50, 1.23)	−0.60	0.2918	0.55 (0.17, 1.72)	0.25	0.5962	1.28 (0.50, 3.26)
13–15 years	0.06	0.8171	1.07 (0.61, 1.86)	−0.08	0.8512	0.92 (0.39, 2.17)	0.37	0.3197	1.45 (0.68, 3.08)
16+ years		Referent			Referent			Referent	
Income (in $)									
0–14,999	0.42	0.2498	1.52 (0.73, 3.17)	0.73	0.2205	2.08 (0.63, 6.83)	0.78	0.0315	2.18 (1.08, 4.43)
15,000–34,999	0.34	0.2287	1.40 (0.80, 2.44)	0.67	0.2336	1.96 (0.63, 6.08)	1.01	0.0608	2.74 (0.95, 7.87)
35,000–74,999	−0.08	0.7758	0.92 (0.50, 1.67)	−0.19	0.6727	0.83 (0.34, 2.04)	−0.03	0.9564	0.97 (0.33, 2.88)
75,000+		Referent			Referent			Referent	

Asian American women. In Eliza Noh's (2007) qualitative study of Asian American women and suicide, she asserts that while prior studies have focused on socio-cultural risk factors for suicide among Asian American women, a discussion of the socio-political risk factors, such as gender and racial trauma, are glaringly absent. It may be that U.S.-born and immigrant Asian American women experience such socio-political risk factors, including gender and racial trauma, differently in character or to different degrees as a result of socio-demographic factors such as acculturation, level of education and number of years in the United States. If this were the case, the lower acculturation of immigrant Asian Americans into American culture and society would mean lower acculturation into socio-political risk factors than U.S.-born Asian American women.

It should also be noted that income is weakly associated with ideation and plan, but is significantly associated with attempt in this sample of Asian Americans. Income is a strong predictor of completed suicide, with increased likelihood associated with low-income groups (Goldsmith, 2002). While our analyses of the relationship of suicidal ideation and suicide plan to income were statistically insignificant, they point to a possible relationship between low-income Asian Americans and suicidal behaviors. Since suicidal behaviors are a relatively rare event across all populations, it is likely that our analyses lacked statistical power.

These within-group differences in suicidal behaviors among Asian Americans provides information that is critical for suicide intervention and prevention programs directed towards this population. In the least, these within-group differences should provide program developers and service providers with the impetus to be aware of the diversity within the Asian American community and to look closely at group differences other than culture or language. These findings also assert that while cultural and linguistic competence are paramount to service provision, program design and mental health policy for this community, it is not enough. The socio-political context, particularly histories of gender and racial based discrimination, colonialism and other forms of oppression, must also be taken into consideration.

This study had several limitations. The measures of suicidal behaviors used were largely based on Western constructs of psychiatric disorders and their behavioral outcomes and are somewhat crudely worded. It is unclear if these measures are comparable to those used in the respective countries of origin of NLAAS respondents. While the instrument was translated into different Asian languages, it is reasonable to suspect that definitions of suicidal behaviors are not the same across cultures.

While this study examined correlates of the different suicidal behaviors, we did not examine the relationship between these behaviors and psychiatric disorders or the number of these behaviors per individual. Depression and other mood disorders are frequently associated with suicidal behaviors. Numerous respondents reported having experienced the different behaviors more than once. Arguably, individuals who have engaged in suicidal behaviors multiple times, particularly suicide attempt, are different than those who may have engaged in a behavior only once. It would be important for future studies to examine how frequency of behaviors correlates to individual characteristics and patterns of help-seeking and psychiatric treatment. Such data may be instructive in identifying which factors contribute to an individual's likelihood of repeating suicidal behaviors and how suicide intervention programs might address the needs of this population.

This study did not examine the differences of immigration context among Asian Americans. Since suicidal behaviors are highly correlated with depression and other

psychiatric disorders such as post-traumatic stress disorder (PTSD), future analyses should disaggregate immigration pathways to distinguish between voluntary immigrants and forced-migrants or refugees. Refugees may be at greater risk for suicidal behaviors than voluntary immigrants since many refugees have had traumatic life experiences, putting them at increased risk for depression and PTSD.

This study provides an initial step in developing reliable estimates of suicidal behaviors in a national sample of Asian Americans. While this study has limitations, it provides information that may be critical for suicide intervention and prevention programs directed towards Asian Americans.

AUTHOR NOTE

This study was funded in part by NIMH Grant T32MH20010. The NLAAS was supported by NIH Research Grant # U01 MH62209, funded by the National Institute of Mental Health as well as the Substance Abuse and Mental Health Services Administration Center for Mental Health Services (SAMHSA/CMHS) and the Office of Behavioral and Social Sciences Research (OBSSR).

Aileen Alfonso Duldulao, David T. Takeuchi, and Seunghye Hong, University of Washington School of Social Work, Seattle, Washington, USA.

Correspondence concerning this article should be addressed to Aileen Alfonso Duldulao, University of Washington, School of Social Work, 4101 NE 15th Avenue, Seattle, WA 98105. E-mail: aileend@u.washington.edu.

REFERENCES

Alegria, M., Takeuchi, D., Canino, G., et al. (2004). Considering context, place and culture: The National Latino and Asian American Study. *International Journal of Methods in Psychiatric Research*, *13*(4), 208–220.

Bourne, P. G. (1973). Suicide among Chinese in San Francisco. *American Journal of Public Health*, *8*(63), 744–750.

Centers for Disease Control and Prevention, National Center for Injury Prevention and Control. Web-based Injury Statistics Query and Reporting System (WISQARS) [online]. (2005) [retrieved Feb. 8, 2009]. Available from URL: www.cdc.gov/ncipc/wisqars

Chan, S. (1991). *Asian Americans: An interpretive history*. Twayne's immigrant heritage of America series. Boston: Twayne.

Crawford, M. J., Nur, U., McKenzie, K., et al. (2005). Suicidal ideation and suicide attempts among ethnic minority groups in England: Results of a national household survey. *Psychological Medicine*, *35*, 1369–1377.

Fortuna, L. R., Perez, D. J., Canino, G., et al. (2007). Prevalence and correlates of lifetime suicidal ideation and suicide attempts among Latino subgroups in the United States. *Journal of Clinical Psychiatry*, *68*(4), 572–581.

Goldsmith, S. K. (2002). *Reducing suicide: A national imperative*. Washington, D.C.: National Academies Press.

Heeringa, S. G., Wagner, J., Torres, M., et al. (2004). Sample designs and sampling methods for the Collaborative Psychiatric Epidemiology Studies (CPES). *International Journal of Methods in Psychiatric Research*, *13*(4), 221–240.

Hovey, J. D. (2000). Acculturative stress, depression, and suicidal ideation among Central American immigrants. *Suicide and Life-Threatening Behavior*, *30*(2), 8–19, 125–138.

Hovey, J. D., & King, C. A. (1997). Suicidality among acculturating Mexican Americans: Current knowledge and directions for research. *Suicide & Life-Threatening Behavior*, *27*(1), 92–103.

Kennedy, M. A., Parhar, K. K., Samra, J., et al. (2005). Suicide ideation in different generations of immigrants. *Canadian Journal of Psychiatry*, *50*(6), 353–356.

Kessler, R. C., Berglund, P., Borges, G., et al. (2005). Trends in suicide thoughts, plans, gestures, and attempts in the United States, 1990–1992 to 2001 to 2003. *JAMA: Journal of the American Medical Association*, *293*(20), 2487–2495.

Kessler, R. C., Borges, G., & Walters, E. E. (1999). Prevalence of and risk factors for lifetime suicide attempts in the National Comorbidity Survey. *Archives of General Psychiatry*, *56*, 617–626.

Kessler, R. C., & Ustun, T. B. (2004). The World Mental Health (WMH) survey initiative version of the World Health Organization (WHO) Composite International Diagnostic Interview (CIDI). *International Journal of Methods in Psychiatric Research*, *13*, 93–121.

Kisch, J., Leino, E. V., & Silverman, M. M. (2005). Aspects of suicidal behavior, depression and treatment in college students: Results from the spring 2000 National College Health Assessment Survey. *Suicide and Life-Threatening Behavior*, *35*(1), 3–13.

Kposowa, A. J., McElvain, J. P., & Breault, K. D. (2008). Immigration and suicide: The role of marital status, duration of residence, and social integration. *Archives of Suicide Research*, *12*, 82–92.

Kushner, H. I. (1984). Immigrant suicide in the United States: Toward a psycho-social history. *Journal of Social History*, *18*, 3–4.

Lai, E. Y. P., & Arguelles, D. (2003). *The new face of Asian Pacific America: Numbers, diversity & change in the 21st century*. San Francisco: AsianWeek, with UCLA's Asian American Studies Center Press, in cooperation with the Organization of Chinese Americans and the National Coalition for Asian Pacific American Community Development.

Lau, A. S., Jernewall, N. M., Zane, N., et al. (2002). Correlates of suicidal behaviors among Asian American outpatient youths. *Cultural Diversity & Ethnic Minority Psychology*, *8*(3), 199–213.

Leong, F. T. L., Leach, M. M., Yeh, C., et al. (2007). Suicide among Asian Americans: What do we know? What do we need to know? *Death Studies*, *31*(5), 417–434.

Lester, D. (1989). Suicide rates in immigrant groups and their countries of origin. *Psychological Reports*, *65*, 818.

Lester, D. (1994). Differences in the epidemiology of suicide in Asian Americans by nation of origin. *Omega: Journal of Death and Dying*, *29*(2), 89–93.

Lester, D. (1997). Suicide in America: A nation of immigrants. *Suicide and Life-Threatening Behavior*, *27*(1), 50–59.

Noh, E. (2007). Asian American women and suicide: Problems of responsibility and healing. *Women & Therapy*, *30*(3), 87–107.

Peña, J. B., Wyman, P. A., Brown, C. H., et al. (2008). Immigration generation status and its association with suicide attempts, substance abuse, and depressive symptoms among Latino adolescents in the USA. *Prevention Science*, *9*(4), 299–310.

Pennell, B., Bowers, A., Carr, D., et al. (2004). The development and implementation of the National Comorbidity Survey Replication, the National Survey of American Life, and the National Latino and Asian American Survey. *International Journal of Methods in Psychiatric Research*, *13*(4), 241–269.

Research Triangle Institute. (2001). *SUDAAN user's manual, release 8.0*. Research Triangle Park, NC: Research Triangle Institute.

Shiang, J., Blinn, R., Bongar, B., et al. (1997). Suicide in San Francisco, CA: A comparison of Caucasian and Asian groups, 1987–1994. *Suicide and Life-Threatening Behavior*, *27*(1), 80–91.

Sorensen, S. B., & Golding, J. M. (1988a). Prevalence of suicide attempts in a Mexican-American population: Prevention implications of immigration and cultural issues. *Suicide and Life-Threatening Behavior*, *18*, 322–333.

Sorenson, S. B., & Golding, J. M. (1988b). Suicide ideation and attempts in Hispanics and non-Hispanic whites: Demographic and psychiatric disorder issues. *Suicide and Life-Threatening Behavior*, *18*, 205–218.

Sorensen, S. B., & Shen, H. (1996). Youth suicide trends in California: An examination of immigrant and ethnic risk. *Suicide and Life-Threatening Behavior*, *26*, 143–154.

Stack, S. (1981). The effect of immigration on suicide: A cross-national analysis. *Basic and Applied Social Psychology*, *2*, 205–218.

Takaki, R. T. (1989). *Strangers from a different shore: A history of Asian Americans*. Boston: Little, Brown.

Trovato, F. (1986). Suicide and ethnic factors in Canada. *International Journal of Social Psychiatry*, *32*(3), 38–46.

Wadsworth, T., & Kubrin, C. E. (2007). Hispanic suicide in U.S. metropolitan areas: Examining the effects of immigration, assimilation, affluence, and disadvantage. *American Journal of Sociology*, *112*(6), 1848–1885.

Wittchen, H. U. (1994). Reliability and validity studies of the WHO Composite International Diagnostic Interview (CIDI): A critical review. *Journal of Psychiatric Research*, *28*, 57–84.