

RICE UNIVERSITY

Acculturation, Social Support and Suicidal Ideation among Asian immigrants in the  
United States

By

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A THESIS SUBMITTED  
IN PARTIAL FULFILLMENT OF THE  
REQUIREMENTS FOR THE DEGREE

Master of Arts

APPROVED, THESIS COMMITTEE

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September 2020

## **Abstract**

This study examines suicidal ideation among Asian immigrant adults in the United States, with consideration of the roles of acculturation and social support. Using the 2002-2003 National Latino and Asian American Study (NLAAS), I conduct latent class analysis with measures of U.S. cultural orientation and Asian ethnic affiliation to create a multidimensional construct of acculturation. Three acculturation groups are identified (assimilated, integrated, separated) that show different associations with suicidal ideation. Then I analyze how the association between acculturation status and suicidal ideation is moderated by social support, distinguishing between perceived versus received support. Findings reveal that the buffering role of social support is gender-specific, with perceived support from friends reducing the risk of suicidal ideation only among assimilated women. Implications for future research include further application of acculturation as a multidimensional construct to various health outcomes and behavior as well as to other immigrant subgroups. Public health intervention efforts aimed at preventing suicide should endeavor to promote perceptions of an available social support system among immigrants, and aid in establishing sources of support outside the family particularly for immigrant women.

**Keywords: acculturation, social support, suicide, immigrant, Asian**

## **Introduction**

Suicide ranks as the tenth leading cause of death in the United States, accounting for approximately one death every 11 minutes. Furthermore, in 2018, over 10 million American adults seriously considered suicide (CDC 2020). Sociological studies of suicide date back to Durkheim ([1897] 1997), who showed that suicide is closely associated with level of integration of a given society. Since then, while suicide has been widely acknowledged as a social phenomenon, relatively little research has investigated the psychosocial correlates of suicidality among Asian American adults, and even less has focused on Asian immigrants in the U.S. (Duldulao, Takeuchi, and Hong 2009; Leong et al. 2007; Wong, Uhm, and Li 2012). This limits understanding of whether, as predicted by the immigrant health paradox (see John et al. 2012), migrant health declines with increasing acculturation in the U.S. In this study, I respond to these limitations of past research by examining suicidal ideation among Asian immigrant adults, considering the role of acculturation as well as social support.

Previous research on acculturation and suicidality among Asian Americans has demonstrated mixed findings. While some work shows that acculturation is negatively related to suicidal behavior (Kuroki 2015; Lau et al. 2002), others find a positive association with suicidality (Wong et al. 2014; Zhang et al. 2013). What they have in common, however, is their conceptualization of acculturation mainly as adoption of U.S. cultural traits (e.g., English proficiency) or loss of Asian ethnic affiliation. In reality, however, pathways for incorporation into the U.S. society can be diverse, as suggested by Portes and Zhou (1993)'s concept of segmented assimilation. For instance, successful structural incorporation (most prominently manifested through economic assimilation) may not necessarily entail abandonment of an ethnic community's values and practices as well as solidarity arising from it. Likewise, migrants can continue to maintain ties even with their sending societies, as captured by the concept of transnationalism (Glick-Schiller, Basch, and Szanton-Blanc 1992).

Thus, in this paper, I move beyond an assimilationist perspective and further consider how Asian immigrants tend to preserve their attachment to ethnic communities (e.g., Wong, Yoo, and Stewart 2005). Specifically, I construct a multidimensional measure of acculturation that reflects not only exposure to U.S. culture but also maintenance of cultural ties to Asian ethnic communities, and analyze its association with suicidal ideation. In addition, while studies have examined direct associations between social support and suicidal ideation among Asian Americans, less research has investigated the buffering role of social support, especially among Asian immigrants. Thus, I aim to analyze the association between acculturation and suicidal ideation with social support as a key moderator. In the endeavor, I take into account the varying roles of perceived versus received support (Lakey and Orehek 2011; Wethington and Kessler 1986), and I also consider gendered patterns, since substantial differences in suicidality exist between men and women (Denney et al. 2009; Langhinrichsen-Rohling, Friend, and Powell 2009; Zhang et al. 2005).

With these aims in mind, I utilize data from the 2002-2003 National Latino and Asian American Study (NLAAS), and ask the following research questions. First, how is acculturation associated with suicidal ideation among Asian immigrant adults in the United States? Second, how does social support moderate the relationship between acculturation and suicidal ideation? Third, do these relationships differ by gender? In order to address these questions, I examine how different strategies of acculturation (assimilation, integration, and separation) are associated with suicidal ideation, also testing for the moderating role of social support. In doing so, I stratify by gender to identify any difference that may exist between Asian immigrant men and women, and distinguish between perceived and received support and investigate their roles against risk of suicidal ideation. Considering that suicidal ideation is a key predictor of completed suicide along with suicide attempt (Druss and Pincus 2000), investigating social support as a key moderator against risk of suicidal ideation among Asian

immigrant adults, a population that has received relatively less academic attention, is an important contribution to public health intervention efforts.

## **Background**

### ***Measurement of Acculturation***

The term acculturation most simply refers to “all the changes that arise following contact between groups and individuals of different cultural backgrounds” (Berry and Sam 2016:11). While it can indicate cultural changes at the group level as well as psychological changes at individual level (Berry 2003), in this paper the definition is explicitly limited to the latter given my focus on the relationship between acculturation and mental health. The process of psychological acculturation, among individuals who experience contact between different cultures, broadly involves behavioral changes (e.g., ways of dressing), acculturative stress, and acculturation strategies leading to psychological (e.g., sense of well-being), sociocultural (e.g., competence in carrying out daily activities in intercultural settings), and intercultural (e.g., establishment of harmonious intercultural relations) adaptation (Berry and Sam 2016). The fact that individuals undergo balancing between various cultures in contact makes multidimensionality (Berry 2003) a core trait of psychological acculturation.

A key limitation of existing scholarship in this area is that most research examining the health of immigrants in the U.S. – those who most closely experience psychological acculturation – has utilized a unidimensional approach with proxies that only measure exposure to U.S. culture (e.g., duration of residence in the U.S.). This is problematic, since a unidimensional approach implies that immigrants acquire cultural traits of the host society while also attenuating attachment to cultures of their origin-countries. In other words, unidimensional approaches assume an inverse relationship between the contacting cultures.

In fact, however, psychological acculturation can entail retainment of original heritage cultures as evidenced by strong ethnic ties most notably held among Latinx and Asian immigrants (Alba and Nee 2003; Massey 1995). For such populations, ethnic identity can function as a useful resource with which they can seek upward mobility (e.g., Mouw and Chávez 2012), reinforcing the process of selective acculturation (Portes and Rumbaut 2001). Thus, quoting Portes and Zhou (1993)'s discussion of segmented assimilation theory, the question becomes: "into what sector of American society a particular immigrant group assimilates" that enables incorporation into the white middle-class; or leads to downward mobility into the underclass; or facilitates structural adaptation with preservation of ethnic values and networks. Inspired by this possibility for multiple pathways, I argue that acculturation should be operationalized so that it embraces the possible interplay between cultures of both the host society and origin-countries. Reflecting this perspective, I draw on the work of Berry (1970; Sommerlad and Berry 1970) who identify different acculturation strategies; I consider three of these in this paper.

First, *assimilation* strategy refers to the adoption of cultural traits of the host society with simultaneous loss of cultural identity from origin-countries. The conception of the melting pot thus results at societal level (e.g., Gordon 1964; Park and Burgess 1969; Warner and Srole 1945). In health research, use of proxies such as English proficiency (Kang et al. 2010) and duration of residence in the U.S. (Singh and Lin 2013) as straight-line measurements of acculturation represents this strategy. Conversely, the strategy of *separation* is sought by individuals who only wish to maintain their original cultural identity and forgo interaction with the host society. From the perspective of the larger society, this strategy reinforces segregation. Reports of linguistic isolation (Wong, Yoo, and Stewart 2007) and its association with poor health (Tsoh et al. 2016) as well as limited utilization of health service use (Kim et al. 2011) belong to a line of health research investigating this strategy.

*Integration* strategy is distinctive in that sense of cultural integrity is achieved at individual level. Individuals with this strategy uphold cultural identity from their origin-countries with concurrent pursuit of active interaction with the host society. At societal level, this strategy fosters multiculturalism, described as a state composed of “autonomous cultural centers organized around discrete ethnic groups” (Alba and Nee 2003:10) with little interpenetration between cultures. This strategy in health has been examined by studies of bilingualism and its benefits such as better self-rated physical and mental health (Kimbrow, Gorman, and Schachter 2012) and lower levels of problem behaviors (Han and Huang 2010) compared to those who are proficient in only English or native language. Contrary to strategies of either assimilation or separation, the strength of studying this strategy lies in bidimensionality, with which levels of both the adoption of cultural traits of the host society and maintenance of those from origin-countries can be gauged simultaneously.

As such, the process of psychological acculturation is not always linear. The breadth of culture, involving behavioral participation in activities and adoption of traits to psychological identification with groups (Snauwaert et al. 2003), signals that cultural identity is inevitably multidimensional and that individuals may selectively adopt behaviors or traits that they deem advantageous from different cultures (Abraído-Lanza et al. 2006). Thus, I follow previous works that have employed multidimensional perspectives of acculturation and seek to extend its literature in relation to suicidal ideation and, more broadly, mental health.

To cite a few examples, Hwang and Ting (2008) found that lower level of affiliation with U.S. culture was associated with higher levels of psychological distress and depression, while affiliation with Asian cultures was not associated with mental health. In relation to suicidality, few studies conceptualized acculturation as bidimensional. Distinguishing between identification with heritage and mainstream cultures, Kennedy and colleagues

(2005) revealed that immigrants with higher scores on the former were at greater risk of suicidal ideation. Work by Davis (1995) similarly acknowledged the bidimensional nature of acculturation, but was methodologically limited with an assimilationist measurement. In recognition of such gap in existing literature, I create a multidimensional measurement of acculturation based on simultaneous consideration of orientations toward U.S. and Asian cultures, and assess its association with suicidal ideation.

### ***Acculturation and Suicide among Asian Americans***

Previous studies examining associations between suicidal behavior and acculturation among Asian Americans first report inconsistent findings, with acculturation primarily conceptualized as assimilation. On the one hand, studies have found that a greater level of U.S.-oriented acculturation is associated with heightened risk of suicidality. Wong and colleagues (2014) revealed that longer proportion of life spent in the U.S. is associated with increased odds of lifetime suicidal ideation among Asian American adults. Similarly, U.S.-born Filipinos were more likely to have experienced lifetime suicidal ideation than their foreign-born counterparts (Kuroki 2015), and U.S.-born Chinese and those who migrated to the U.S. at 18 years or younger reported greater risks of suicidal ideation than those who were born in China and migrated at older ages respectively (Zhang et al. 2013). Conversely, work by Cheng and colleagues (2010) showed that Asian Americans with greater levels of Asian ethnic identification displayed lower risks of suicide attempt. Utilizing a more diversified measurement of acculturation based on proportion of life spent in the U.S., generational status and English fluency, Lee (2016) also found that greater proportion of life spent in the U.S. and generational status were associated with increased risks of suicidal ideation, and that generational status was also a significant risk factor for suicide attempt.



On the other hand, some studies have documented that a greater level of U.S.-oriented acculturation is associated with lower risk of suicidal behavior. For instance, Asian Americans with greater levels of bicultural affiliation, or lower levels of Asian affiliation, reported lower risks of suicidal ideation (Davis 1995). Kennedy and colleagues (2005) similarly found that young adults with stronger identification with their heritage cultures experienced increased levels of suicidality. Other work by Lau and colleagues (2002) found that among both children and adolescents, risk of suicidality was greater among those who were less acculturated – according to a composite measurement of acculturation based on English proficiency, primary language spoken at home, age of immigration and proportion of life spent in the United States. Kuroki (2015) has also shown that among those with a history of suicidal ideation, foreign-born Filipinos faced higher risk of suicide attempt than those who were U.S.-born.

These inconsistent findings indicate that widely employed proxies of acculturation, often implicitly equated with assimilation, may be fragmentary and thus insufficient to envelop possibly diverse patterns of cultural adaptation among Asian Americans that may be significantly associated with suicidal behavior. For instance, Lee (2016) discovered that while those in the first generation reported greater risk of suicidal ideation than those in the second generation among the Chinese, those with longer proportion of life spent in the U.S. conversely were at greater risk than their newer counterparts. Considering that generational status and proportion of life spent in the U.S. both tend to be popular proxies of assimilation, such discrepant findings suggest the need to theoretically and conceptually differentiate even between facets of U.S.-oriented acculturation (Lee 2016). Extending this view, I suggest the need to additionally incorporate aspects of orientation toward Asian ethnic cultures that are likely to be involved in order to more accurately examine the association between acculturation and suicidal behavior.

Furthermore, previous studies investigating suicidal behavior among Asian Americans have paid little attention to difference by gender. Existing research on gender difference in suicidality has demonstrated that female adolescents and young adults tend to face greater risk of suicidal ideation (Rich et al. 1992) as well as suicide attempt (Lewinsohn et al. 2001; Zhang et al. 2005) than their male counterparts, and that such patterns remain valid across racial/ethnic groups (Langhinrichsen-Rohling, Friend, and Powell 2009). Moreover, factors associated with risks of suicidal behavior have also been found to be gendered. For example, Denney and colleagues (2009) report that while family size and employment status form a negative relationship with suicide risk regardless of gender, education and marital status are predictive of suicide risk only among men. Similarly, Zhang and colleagues (2005) identified low income and smoking to be associated with suicide attempt among men, and low educational level, poor self-rated health and drug use among women. Despite such gendered patterns in suicidality, most research on Asian Americans has treated the group as aggregate, or was unable to identify any significant difference by gender (e.g., Duldulao, Takeuchi, and Hong 2009; Wong, Uhm, and Li 2012). Only a few studies have confirmed that women are more likely to report suicidal ideation than men among Asian Americans (Wong et al. 2014), and that different psychiatric factors are associated with suicidal ideation such that anxiety and depressive disorder are correlated most strongly for men and women respectively (Cheng et al. 2010).

In addition, scholarship on migration suggests a stronger relationship between acculturation and health among migrant women than men (Akresh and Frank 2008). This includes for health behaviors; for example, studies show a stronger relationship between U.S.-oriented acculturation and smoking among immigrant women than men (Lopez-Gonzalez, Aravena, and Hummer 2005), including among Asian Americans (An et al. 2008; Ma et al. 2004). In recognition of such gendered patterns associated with acculturation and

health behavior, as well as gender variance in suicidal behavior more generally, in this paper I analyze how various pathways of acculturation are related to suicidal ideation differently among immigrant men and women.

### ***Social Support as a Buffer***

Social support can be broadly defined as access to and utilization of individuals, groups, or organizations in face of adverse conditions or stressors in life (Pearlin et al. 1981). A key feature of social support is that it arises from interpersonal engagement that extends to a level of involvement and concern, based on intimate communications and feelings of solidarity, that goes beyond mere contact (Pearlin et al. 1981:340). In health research, the role of social support has been primarily investigated through two models. The main effect model examines the statistical main effect of social support on an outcome, based on the notion that it is beneficial to health regardless of whether or not an individual is under stress (Cohen and Wills 1985). Alternatively, the buffering model examines the interactive effect of social support on an outcome, with the underlying assumption that social support operates through reducing (i.e., buffering) the negative impacts of stress (Cohen and Wills 1985; Pearlin et al. 1981; Thoits 1982; Wheaton 1985). Of note is the distinction between perceived and received social support. Whereas the former refers to the perception of hypothetical availability of support, the latter can be defined as actual receipt of advice, aid, or affect from one's interpersonal networks (Wethington and Kessler 1986). While studies consistently document a positive association between perceived support and mental health, studies on received support and mental health tend to report no association or, conversely, a negative relationship (Lakey and Orehek 2011). In light of such features of social support, I distinguish between perceived and received social support and examine both their direct and buffering roles in this

research.

Existing studies on the relationship between social support and suicidal behavior among Asian Americans have mostly relied on the main effect model, with little distinction between types of support and heavy emphasis on the role of the family. On the one hand, studies have demonstrated that family can function as a risk factor by being the locus of conflict. For example, levels of parent-child conflict and suicidality are positively associated, particularly among children and adolescents who are less assimilated (Lau et al. 2002). Qualitative interviews with young adults (Augsberger et al. 2018; Wong et al. 2011) reveal that unmet expectations within the family, along with clashes between Asian and American cultural norms, function as main sources of suicidal ideation. Quantitative studies have substantiated such findings by showing that family discrepancy, defined as level of perceived failure to meet family standards, is positively associated with risk of suicidal ideation (Wang, Wong, and Fu 2013). In a similar vein, family problems ranked among the top significant events among those who have seriously considered suicide (Wong, Brownson, and Schwing 2011). Such conflict within the family was further associated with suicide attempt (Cheng et al. 2010), particularly among those with a history of suicidal ideation (Kuroki and Tilley 2012).

Conversely, family can serve as a protective factor against the risks of suicidal behavior. Levels of family cohesion and suicidal ideation are negatively associated, particularly among adults with low proficiency in English (Wong, Uhm, and Li 2012). Just living with a family member as well as a partner is associated with lower odds of reporting morbid thoughts and suicidal ideation (Wong, Brownson, and Schwing 2011). In a similar vein, Korean international students who moved to the U.S. without their parents were more likely to experience suicidal ideation as well as acculturative stress and depression than their immigrant counterparts who migrated together with their parents, underscoring the role of

parental support (Cho and Haslam 2010). Kuroki (2015) further found that the sheer number of family relatives living within a close distance can operate as a protector against suicidal behavior among Filipino Americans, and Wong and Maffini (2011) likewise identified family connectedness as a protective factor against suicide attempt among Asian American adolescents.

While studies on the relationship between social support and suicidality among Asian Americans have primarily focused on the family, less work has investigated the role of other sources of social support, such as friends. Qualitative interviews with Asian American women conducted by Augsberger and colleagues (2018) revealed that experience of social isolation from not only family but also friends precipitated suicidal ideation. Cho and Haslam (2010) similarly found that perceived social support from friends formed a negative relationship with suicidal ideation among Korean American adolescents, and Wong and Maffini (2011) discovered that received social support from friends also contributed to lowering the odds of suicide attempt as a protective factor among Asian American adolescents. These findings are in line with research documenting the importance of friendship networks more generally, whereby isolation from and dissonance with peers resulted in heightened risks of suicidal ideation and attempt among female and male adolescents respectively (Bearman and Moody 2004; Giletta et al. 2017). Likewise, among adults, damaged friendship contributed to elevated risk of suicide attempt (Marver et al. 2017), and presence of friends to confide in played a key role as a protective factor against suicide (Turvey et al. 2002).

Such roles of social support can further differ by gender. Perceived social support from family, friends, and significant others was negatively associated with suicidal behavior only among Asian American women (Park et al. 2015). More broadly in terms of mental health, it has been demonstrated that positive social support from family and friends can be a moderator in the relationship between acculturative stress and self-rated mental health

particularly among immigrant women (Panchang et al. 2016). Viruell-Fuentes and Schulz (2009)'s qualitative interviews with Mexican immigrant women, for example, revealed that ties to broader ethnic communities – whether through religious or local organizations – were critical to these women who felt enclosed and stressed within tightly knit small family relationships. They found that developing secondary local ties with ethnic communities provided these immigrant women opportunities for self-efficacy and enhanced their overall sense of well-being. Ornelas and colleagues (2009) similarly discovered that received social support from husbands, relatives, and female friends such as discussing worries and problems together composed an integral part of Mexican immigrant mothers' strategies against economic and social stressors. Research has also demonstrated that sources of social support are differently associated with mental health by gender. Among Asian immigrants, stronger associations between family conflict and mental health problems have been identified among women with greater ethnic identification, whereas stronger associations between community reception (i.e., everyday discrimination) and mental health problems were found among men with poorer English proficiency (Leu, Walton, and Takeuchi 2011). In a similar vein, Masood, Okazaki, and Takeuchi (2009) discovered that family support is negatively associated with psychological distress among South Asian American women, while levels of family conflict and perceived community social standing are each positively and negatively associated with psychological distress among men. These findings attest to the fact that the role of social support against suicidality and mental health more broadly can be dependent on gender. With the aim of contributing to existing literature on Asian immigrants, I not only analyze the relationship between acculturation and suicidal ideation with social support as a moderator, but also investigate the possible roles that different types and sources of support can play in the relationship depending on gender.

## **Data and Methods**

### ***Data***

This study utilizes data from the 2002-2003 National Latino and Asian American Study (NLAAS), a nationally representative community household survey designed to measure mental and physical health and healthcare access among Latinx and Asian Americans aged 18 and over residing in the United States, excluding institutionalized and military-based populations. A strength of the NLAAS is that it includes a wide range of acculturation measures, both toward the U.S. and country-of-origin. A total of 4,649 interviews were completed, drawn using a four-stage national area probability sample with special supplements for adults from selected ethnic groups, including those of Chinese, Filipino, and Vietnamese origin. Altogether, 2,095 respondents identified as Asian American. For this study, my analytic sample is restricted to 1,637 foreign-born Asians who have valid information on suicidal ideation (867 women and 770 men).

### ***Measures***

My dependent variable is a dichotomous measure of lifetime suicidal ideation. In the original questionnaire, respondents were asked whether they have ever seriously thought about committing suicide. A dichotomous measure was created with respondents classified as 1=yes, and 0=no.

My main predictor of interest is acculturation. Drawing on theoretical discussions by Berry (1970, 2003) regarding the multidimensional nature of the acculturation process, in this paper acculturation is operationalized based on four criteria: duration of U.S. residence (from less than 5 years to 20 years and over), English proficiency (average score across reading, writing, and speaking English with Cronbach's alpha of .97; ranges from 1-4), ethnic

attachment (average score across three measures with Cronbach's alpha of .75: identification with people of same racial and ethnic descent, feelings of closeness in ideas to people of same racial and ethnic descent, and amount of time intended to be spent with people of same racial and ethnic descent; ranges from 1-4), and native language proficiency (average score across reading, writing, and speaking native language with Cronbach's alpha of .92; ranges from 1-4). Based on these items, a latent class analysis was conducted.

Latent class analysis is an inductive clustering method that classifies objects similar in their observation values to the same class, the "latent class", based on identified patterns or selected criteria (Magidson and Vermunt 2004). The analysis was conducted with a priori categorization of three classes: the assimilated, the integrated, and the separated (Berry 2003). The *assimilated* refers to Asian immigrants that more strongly adhere to the culture of the receiving (U.S.) society and show evidence of detachment from the culture of the sending society. The *separated* refers to those that are the reverse, with strong attachment to their culture of origin and evidence of avoidance of interaction with the culture of the receiving society. Last, the *integrated* are an immigrant group that is distinctive from both the assimilated and the separated in that they strongly adhere to the culture of the receiving society while simultaneously maintaining strong ties to the culture of the sending society.

Table 1 displays the percentage distribution and mean values for each component of the acculturation measure across the three classes. *Class 1 is composed of the "assimilated",* who have stayed long in the United States with high fluency in English, while degree of ethnic attachment and native language proficiency are low: 92 percent have lived in the United States for 11 or more years, and English proficiency is the highest (3.48 out of 4.0), but ethnic attachment and native language proficiency are the lowest among the three classes with a score of 2.91 and 1.67, respectively. *Class 2 is comprised of the "integrated",* who have stayed long in the United States with fluency in English, but at the same time they are



strongly attached to their ethnic groups and exhibit fluency in their native language: 63 percent have lived in the United States for 11 or more years, English proficiency is high at 3.22 out of 4.0, and ethnic attachment and native language proficiency are also high with scores of 3.34 and 3.69. Last, *class 3 includes those who are “separated”*, who have stayed long in the United States but show little fluency in English, strong attachment to their ethnic groups and fluency in their native language: 57 percent have lived in the United States for 11 or more years, but English proficiency is the lowest among the three classes with a score of 1.55 out of 4.0, while their score for ethnic attachment is the highest with 3.37 out of 4.0 and also high for native language proficiency with a score of 3.14.

The study adjusts for a series of demographic, socioeconomic and psychosocial characteristics (see Table 2 for specific sample characteristics). Demographic characteristics include age (range: 18 to 95), gender (1=women, 0=men), marital status (1=married/cohabiting, 0=all other), family size (range: 1 to 7), and ethnic identity (Chinese, Filipino, Vietnamese, and other Asian groups). For socioeconomic status, measures of educational level (ranging from 1=0 to 11 years and 4=16 or more years), employment status (1=employed, 0=unemployed/out of the workforce), and Census 2001 income-to-poverty index are included.

Psychosocial characteristics include several stress and support measures. Level of acculturative stress was measured as a summed score of nine dichotomous (yes/no) items such as “Do you feel guilty for leaving family or friends in your country of origin?” and “Do you feel that in the United States you have the respect you had in your country of origin?” Level of family cultural conflict was likewise measured as a summed score of five items. For level of family cultural conflict, item response categories ranged from 1 (“hardly ever or never”) to 3 (“often”), to statements such as “You have felt that being too close to your family interfered with your own goals.” For frequent attendance at religious services,

respondents were asked “How often do you usually attend religious services?”, which ranged from 1 (“more than once a week”) to 5 (“never”); a dichotomous measure was constructed to reflect those who attend at least once a week (1=more than once a week/about once a week, and 0=one to three times a month/less than once a month/never). Received support from family or relatives was measured by frequency of talking on the phone or getting together with family or relatives (ranging from 1 = "less than once a month" and 5 = "most every day"). Perceived support from family or relatives was measured as a summed score of two measures ( $r=.66$ ): feelings of opening up to discuss worries with family or relatives (1 = "not at all" to 4 = "a lot"), and feelings of reliance on family or relatives (1 = "not at all" to 4 = "a lot"). Received support from friends was measured by frequency of talking on the phone or getting together with friends (ranging from 1 = "less than once a month" and 5 = "most every day"), and perceived support from friends was measured as a summed score ( $r=.72$ ) of feelings of opening up to discuss worries with friends (1 = "not at all" to 4 = "a lot"), and feelings of reliance on friends (1 = "not at all" to 4 = "a lot").

### *Analysis*

Logistic regression models are used to predict suicidal ideation. Following pooled analysis, all analyses are stratified by gender and weighted to represent the non-institutionalized Asian immigrant population in the United States. All analyses were run using Stata 16.0 and included “svy” commands to estimate Taylor linearized standard errors to account for the complex sampling frame of the NLAAS. All missing data were multiply imputed using chained equations.

## Results

### *Sample Characteristics*

Table 2 presents weighted sample characteristics for foreign-born Asian adults, stratified by acculturation status and gender. Among women, suicidal ideation rates are four times higher among the assimilated group (20%) when contrasted to those among the separated group (5%), and almost three times higher than the integrated group (7%). Among men, while the rates are less striking, the integrated group reports almost half the rate of suicidal ideation (5%) compared to the assimilated and the separated groups (both 9%).

Demographically, men and women in the separated group are the oldest (mean ages around 47) while both men and women in the assimilated group are the youngest (mean age about 34 and 37, respectively). Rates of marriage/cohabitation are also the lowest among the assimilated group (59% of women and 49% of men). Family size is largest among the separated group regardless of gender. In terms of ethnic composition, Chinese and Vietnamese respondents comprise the majority among the separated group, with 45% and 34% for women and 41% and 32% for men, respectively. Among the assimilated and integrated groups, 'other Asian' comprises the largest proportion, closely followed by Chinese among the assimilated group (27% for women, on par with Filipinas and 30% for men) and by Filipino among the integrated (28% for women and 23% for men, on par with Chinese for men).

Socioeconomically, assimilated and integrated Asian immigrants tend to fare better than the separated. The separated group reports much lower levels of education and income, although their employment level is more similar to other groups. The integrated group is the most highly educated regardless of gender, with the highest employment rates. However, when looking at income, assimilated men show the highest income-to-poverty ratio (8.07),

while for women income-to-poverty is highest among the integrated group (6.73).

Turning to measures of stress and support, acculturative stress is most severe among the separated group, regardless of gender (score of 2.27 for women and 2.38 for men), followed by the integrated (score of 1.53 for women and 1.63 for men) and the assimilated (score of 1.17 for women and .93 for men) groups. However, assimilated men and women report the highest levels of family cultural conflict. Rates of attendance at religious services are highest among the integrated group, both among men and women. As to received/perceived support from family or relatives/friends, among women, on average the assimilated group consistently reports the highest scores across types and sources of support, while the separated group reports the lowest. Among men, likewise, the assimilated group reports the highest level of support (except for received support from family or relatives), whereas the separated group reports the lowest across all types and sources of support.

### ***Logistic Regression Models Predicting Suicidal Ideation***

Tables 3 to 5 present odds ratios from multivariate logistic regression models predicting suicidal ideation among Asian immigrants. Models for the pooled sample are included in Table 3, and begin with baseline Model 1 that regresses suicidal ideation on acculturation status and demographic characteristics. Among the pooled sample, the integrated group reports 45% lower odds of suicidal ideation than the assimilated group, controlling for demographic characteristics. It also shows that being married or cohabiting is associated with 63% lower odds of reporting suicidal ideation compared to those who are not in relationships, and that greater family size is associated with significantly lower odds of reporting suicidal ideation.

Models 2 to 4 adjust for additional measures that may confound the association

between acculturation status and suicidal ideation. In Model 2, adding socioeconomic status results in only a slight reduction in the odds of reporting suicidal ideation for the integrated group (from .55 to .53) and a minimal increase for those who report being married or cohabiting. Greater family size continues to be associated with lower odds of reporting suicidal ideation. When stress and support measures are added in Model 3 with support from family or relatives, the odds ratio for the integrated group increases slightly (OR=.56), as well as for those who report being married or cohabiting and those with greater family size. Model 3 also shows that increasing family cultural conflict is associated with significantly higher odds of reporting suicidal ideation. Model 4 adds measures of support from friends; none are significant predictors of suicidal ideation and results in only a slight decrease (OR=.54) in the odds of suicidal ideation among the integrated, which remains significant.

Since this study also asks how social support moderates the relationship between acculturation and suicidal ideation, I tested interactions between each type of support from both family or relatives and friends with the acculturation status measure. Only one interaction term was significant, between perceived support from friends\*acculturation status, which is presented in Model 5. For ease of interpretation, I graph this interaction using predicted probabilities in Figure 1, which shows that the probability of suicidal ideation decreases with increasing perceived support from friends – but only among the assimilated group. For separated and integrated Asian immigrants, the probability of suicidal ideation remains consistently low regardless of how much they perceive support from friends.

### *Differences by Gender*

Tables 4 and 5 present odds ratios from the same multivariate logistic regression model sequence predicting suicidal ideation shown in Table 3, but stratified by gender. Table 4 shows that among Asian immigrant women in Model 1 (which adjusts for demographic

characteristics), both the integrated and the separated groups report significantly lower odds of suicidal ideation compared to the assimilated group (OR = .41 and .20, respectively). Looking across Models 1 through 4, adjusting for control measures has little effect on these relationships. Table 4 also shows that among Asian immigrant women, being married or cohabiting is consistently associated with lower odds of reporting suicidal ideation. When stress and support measures are added in Model 3, Filipinas as well as women in the other Asian group report significantly lower odds of reporting suicidal ideation than Chinese women, and higher educational level is associated with lower odds of suicidal ideation. Importantly, Model 3 shows that level of family cultural conflict is a significant predictor of suicidal ideation, positively associated with the odds of reporting suicidal ideation. Model 4 also shows that received support from friends is associated with significantly higher odds of reporting suicidal ideation among Asian immigrant women, whereas perceived support from friends is associated with lower odds in Model 5.

As with the pooled models, in results not shown, I tested interactions between support from both family or relatives and friends with acculturation status to assess the potential for moderation in these relationships. As with the pooled model findings, among Asian women perceived support from friends is the only significant interaction term, which I present in Model 5 and graph in Figure 2. It shows that, similar to what was shown for the pooled sample, the predicted probability of suicidal ideation decreases with increased perceived support from friends only among the assimilated group. Because of this, the probability of suicidal ideation is significantly higher among assimilated women who report lower levels of perceived friend support; the gap grows smaller as perceived support increases, but it only closes among women who report the highest level of perceived support. The predicted probability of suicidal ideation among integrated and separated women is similarly low and shows essentially no variation by perceived support from friends.

Turning to Table 5, findings show fewer associations with suicidal ideation among Asian immigrant men. In particular, there is no significant association between acculturation status and suicidal ideation, in any model. As with women, being married or cohabiting is associated with lower odds of reporting suicidal ideation, and greater age and family size are particularly associated with significantly lower odds of reporting suicidal ideation among Asian immigrant men. Whereas Filipinas reported significantly lower odds of suicidal ideation than Chinese women, across all models Filipino men report nearly three times the odds of suicidal ideation compared to Chinese men. In terms of social support, level of family cultural conflict continues to be positively associated with the odds of reporting suicidal ideation, whereas perceived support from family or relatives is associated with lower odds of reporting suicidal ideation. In results not shown, all interaction tests between measures of social support and acculturation status were not significant. However, for comparability purposes with results for the pooled and women-only samples, in Model 5 I present the findings for the interaction that includes perceived support from friends.

## **Conclusion**

Suicide is a public health priority that requires collaboration among various sectors of society to prevent, ranging from health and education to politics and the media (WHO 2019). As much as it is a public health issue, it is also a social phenomenon that is dependent on cultural context (Choi, Rogers, and Werth 2008). While a great deal of scholarship exists on suicidal behavior, less is known about the psychosocial correlates of suicidal behavior among Asian Americans, especially among Asian immigrants in the United States (Duldulao, Takeuchi, and Hong 2009; Leong et al. 2007). The paucity of research has resulted in lack of endeavors to verify the validity of the immigrant health paradox in regard to Asian suicidality in the United States. While this study did not employ a design with direct comparison

between Asian immigrants and their native-born counterparts, I do provide a picture of the variable trajectories of acculturation, ranging from straight-line assimilation to separation and integration, and their relationships with suicidality among Asian immigrants. Specifically, I examined how Asian immigrant adults with distinct experiences of acculturation faced risk of suicidal ideation with social support as a buffer.

Results from latent class analysis involving both orientation toward U.S. culture and affiliation with Asian ethnic cultures revealed three acculturation groups: the assimilated, the integrated, and the separated group. Descriptive statistics showed that rates of suicidal ideation varied among these groups as well as by gender. Variation in suicidal ideation across acculturation groups stood out more strongly among women, with assimilated women reporting the highest rate of approximately 20% while separated women reported the lowest with only a quarter rate in comparison (5%), and integrated women in between with about one third of the rate (7%). Although less dramatic, variation among men was also notable with both assimilated and separated men recording the highest rate of suicidal ideation (9% each) whereas the lowest rate was identified among the integrated group with about half the rate (5%). Outcomes from logistic regression models further revealed that the integrated group consistently has lower odds of suicidal ideation than the assimilated group among the pooled sample. Among women, not only the integrated group but also the separated group continues to have considerably lower odds of suicidal ideation compared to the assimilated group, whereas no significant variation by acculturation status exists among men.

Taking into account social support, findings first showed both direct and buffering roles of social support on suicidal ideation. Among the pooled sample and across gender, family cultural conflict showed direct associations, being positively related to suicidal ideation. Particularly among men, perceived support from family or relatives continued to be associated with reduced odds of reporting suicidal ideation. The strong association between



familial support and suicidal ideation identified throughout this study regardless of gender adds to existing literature that consistently documents the powerful role of the family among Asian Americans in preventing suicidal ideation (Wong and Maffini 2011; Wong, Uhm, and Li 2012). Among the pooled sample and among women, the buffering role of perceived support from friends has also been identified in the relationship between acculturation and suicidal ideation. Perceived support from friends functioned as a key moderator in reducing the likelihood of suicidal ideation particularly among those who belonged to the assimilated group. Such finding may have resulted from their unique position where they are pushed to seek for support outside the family. For instance, the assimilated group in this study, regardless of gender, exhibited the highest score of family cultural conflict as well as lowest score of family cohesion (in results not shown), in line with prior research (Kim 2011; Tsai-Chae and Nagata 2008; Ying and Han 2007). They additionally reported the least frequent attendance at religious services. Such lack of venues to garner support may likely have led these individuals to become reliant on their friends, as evidenced by the largest amount of support actually received from friends, regardless of gender, among the acculturation groups. Indeed, existing research has demonstrated that unmet familial expectations and lack of belongingness to one's family (Wong et al. 2011) as well as parental conflict (Augsberger et al. 2018) and absence of religious affiliation (Wong, Brownson, and Schwing 2011) can potentially serve as risk factors of suicidal ideation among Asian American adults. The sense of social isolation that these assimilated individuals particularly experienced, then, may have lent more influence to support from friends compared to other acculturation groups.

Second, differentiation between perceived and received social support yielded opposite findings. Among the pooled sample, as aforementioned, perceived support from friends played the role as key moderator in the relationship between acculturation and suicidal ideation. While the same role has likewise been identified among women in addition

to a direct association, conversely, received support from friends resulted in increased odds of suicidal ideation. These contrasting findings are in line with existing literature that documents the consistent mental health benefits of perceived social support (Cornman et al. 2003; Lakey and Scoboria 2005; Mossakowski and Zhang 2014). Received social support, on the other hand, has been shown to be negatively or non-significantly linked to mental health (Bolger and Amarel 2007; Lakey et al. 2009; Mossakowski and Zhang 2014), possibly due to feelings of indebtedness, dependence or incompetence on the part of the recipient (Thoits 2011). Thus, the positive association between received friend support and suicidal ideation among women in this study may be a manifestation of such feelings shared across acculturation groups.

Third, findings showed that the relationship between acculturation and suicidal ideation, with social support as a moderator, is gender-specific. While the buffering role of perceived support from friends was evident among women, it did not surface among men. Previous research has shown that perceived social support is negatively associated with suicidality (Park et al. 2015) and mental health (Panchang et al. 2016) distinctively among women, and that social ties outside the family can especially be beneficial to immigrant women who seek involvement in broader ethnic communities and organizations (Viruell-Fuentes and Schulz 2009). The gender-dependent moderating role of perceived friend support in this research may be evidence of how the benefits of social support as a buffer can likewise be gendered in relation to suicidality. Furthermore, in comparison to the shared direct associations of familial support across gender, the buffering role of perceived friend support sheds light on how sources of support outside the family can particularly be important for immigrant women most strongly involved in U.S. culture.

Despite the importance of this study's findings, it has three main limitations that the reader should keep in mind. On the one hand, while ethnic identity was considered, the current sample was too small to enable stratified analyses or break down of the category of

‘other Asian’ that encompassed a range of ethnic identities (e.g., Indian, Japanese) despite their heterogeneity in socioeconomic and immigrant status (Pew Research Center 2019). For instance, while Filipina immigrants reported almost half the odds of suicidal ideation whereas Filipino immigrants reported almost three times compared to their Chinese counterparts in this study, further analyses of the factors that contributed to such difference could not be conducted. Future research with large enough samples to facilitate such analyses should endeavor to provide detailed explanations for such ethnic variation. Relatedly, the current analysis drew on data from the NLAAS, collected in 2002-2003. While more recent data would be preferable, no other existing study includes information on facets of psychological attachment (e.g., feelings of closeness in ideas to one’s racial/ethnic descent) as an integral component of acculturation along with more popular proxies such as duration of residence in the U.S. New data collection efforts are needed that include robust and ethnically diverse samples of U.S. and foreign-born Asian adults, along with detailed information on acculturation and health status. Another limitation of this study is that measures of social support were confined to emotional assistance, despite the fact that other dimensions existed such as informational (e.g., advice) and instrumental (e.g., material resources) assistance (House and Kahn 1985; Wong, Yoo, and Stewart 2005). The current study was unable to identify how such varying dimensions of social support differently moderated the relationship between acculturation and suicidal ideation. Thus, future research with available data should strive to incorporate variable dimensions of social support and analyze their associations with suicidal ideation.

Nevertheless, this study contributes to existing scholarship on suicidality among Asian Americans. Prior research documenting the relationship between acculturation and suicidal behavior among Asian Americans has largely been limited to one-sided proxies that mostly gauge involvement in U.S. culture (e.g., Lee 2016; Wong et al. 2014). In light of such

limitation, this study examined the association between acculturation and suicidal ideation with a multidimensional framework (Berry 1970, 2003) that simultaneously took into account both U.S. culture involvement and Asian ethnic attachment. Results from latent class analysis indicated that three discrete types of acculturation (assimilation, integration, separation) were identifiable among Asian immigrants. Furthermore, when analyzing the association between different acculturation types and suicidal ideation, this study tested for the buffering role of social support – both perceived and received – in the relationship. Existing research on Asian suicidality has primarily focused on the main effect model (Cohen and Wills 1985) with little distinction between different types of social support. This study aimed to address such gap by testing for the buffering role of social support as well as distinguishing between perceived and received social support (Wethington and Kessler 1986). In addition, this study conducted gender-stratified analyses in order to investigate the possibly varying associations between acculturation, social support, and suicidal ideation among immigrant men and women. Outcomes revealed gender-specific relationships whereby social support buffered against risk of suicidal ideation only among women.

To conclude, future research should continue to develop a multidimensional understanding of acculturation in relation to health outcomes and behavior as well as apply the framework to other immigrant subgroups. Furthermore, considering both the direct and buffering roles of social support, public health intervention efforts aimed at preventing suicidality among immigrants should seek to promote perceptions of an available social support system as well as aid in establishing sources of support outside the family particularly for immigrant women.

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**Tables.**

**Table 1. Components of Acculturation Status Measure**

	Acculturation Status		
	Class 1 (Assimilated)	Class 2 (Integrated)	Class 3 (Separated)
Duration of U.S. Residence, %			
Less than 5 years	.04	.22	.19
5-10 years	.04	.14	.24
11-20 years	.40	.33	.33
20 years and over	.52	.30	.24
English Proficiency, mean	3.48	3.22	1.55
Ethnic Attachment, mean	2.91	3.34	3.37
Native Language Proficiency, mean	1.67	3.69	3.14
Sample Size	240	718	679

**Table 2. Weighted Sample Characteristics, Foreign-Born Asian Adults (N =1,637)**

	Assimilated (N =240)		Integrated (N =718)		Separated (N =679)	
	Women	Men	Women	Men	Women	Men
Suicidal Ideation, %	.20	.09	.07	.05	.05	.09
<b>Demographic Characteristics</b>						
Age at interview, mean	34.12 (12.92)	36.64 (14.70)	40.14 (13.34)	40.81 (13.24)	46.95 (13.04)	47.28 (14.95)
Married/Cohabiting, %	.59	.49	.76	.80	.78	.77
Family size, mean	2.85 (1.54)	2.61 (1.45)	2.86 (1.57)	2.85 (1.58)	3.18 (1.63)	3.06 (1.63)
Ethnic identity, %						
Chinese	.27	.30	.20	.23	.45	.41
Vietnamese	.08	.11	.05	.09	.34	.32
Filipino	.27	.25	.28	.23	.08	.09
Other Asian	.38	.34	.47	.44	.13	.18
<b>Socioeconomic Status</b>						
Educational level, mean	3.14 (.93)	3.36 (.90)	3.36 (.87)	3.46 (.85)	2.13 (1.13)	2.32 (1.14)
Employed, %	.69	.80	.72	.85	.63	.78
Income-to-Poverty index, mean	6.25 (4.97)	8.07 (5.48)	6.73 (5.10)	6.81 (5.02)	3.38 (3.87)	4.02 (3.94)
<b>Stress and Support</b>						
Level of acculturative stress, mean	1.17 (1.19)	.93 (1.12)	1.53 (1.53)	1.63 (1.56)	2.27 (1.83)	2.38 (1.79)
Level of family cultural conflict, mean	7.14 (2.10)	6.87 (1.94)	6.68 (1.79)	6.29 (1.62)	6.11 (1.72)	6.26 (1.75)
Frequent attendance at religious services, %	.33	.27	.49	.45	.33	.32
Received support from family/relatives, mean	3.41 (1.22)	3.02 (1.21)	3.40 (1.20)	3.07 (1.15)	2.88 (1.33)	2.76 (1.28)
Perceived support from family/relatives, mean	6.23 (1.74)	5.90 (1.95)	6.01 (1.86)	5.56 (1.90)	4.85 (1.86)	4.68 (1.85)
Received support from friends, mean	3.32 (1.16)	3.34 (1.20)	3.30 (1.21)	3.13 (1.19)	2.51 (1.29)	2.55 (1.32)
Perceived support from friends, mean	6.36 (1.68)	5.82 (1.79)	5.64 (1.71)	5.24 (1.73)	4.38 (1.75)	4.43 (1.76)
Sample size	111	129	371	347	385	294

NOTE: Standard deviations in parentheses.

**Table 3. Odds Ratios from Logistic Regression Models Predicting Suicidal Ideation, Pooled Sample (N =1,637)**

	Model 1	Model 2	Model 3	Model 4	Model 5
<b><i>Acculturation Status (ref: Assimilated)</i></b>					
Integrated	.55*	.53*	.56*	.54*	.16*
Separated	.65	.65	.63	.60	.15*
<b><i>Demographic Characteristics</i></b>					
Age at interview	.99	.99	.99	.99	.99
Female	1.29	1.30	1.30	1.32	1.36
Married/Cohabiting	.37***	.38***	.42***	.40***	.40***
Family size	.83**	.83**	.85*	.85*	.85*
<b><i>Ethnic identity (ref: Chinese)</i></b>					
Vietnamese	.84	.84	.81	.79	.81
Filipino	1.02	1.02	.99	.99	1.00
Other Asian	.75	.74	.71	.71	.72
<b><i>Socioeconomic Status</i></b>					
Educational level		1.06	1.03	1.04	1.04
Employed		1.22	1.22	1.24	1.23
Income-to-Poverty index		.98	.98	.98	.98
<b><i>Stress and Support</i></b>					
Level of acculturative stress			.98	.98	.99
Level of family cultural conflict			1.28***	1.28***	1.27***
Frequent attendance at religious services			.92	.94	.94
Received support from family/relatives			.93	.93	.92
Perceived support from family/relatives			.99	1.01	1.01
Received support from friends				1.00	1.01
Perceived support from friends				.94	.80
<b><i>Perceived Support from Friends × Acculturation Status</i></b>					
Integrated					1.22
Separated					1.28*

NOTE: \*p<.05 \*\*p<.01 \*\*\*p<.001



**Table 4. Odds Ratios from Logistic Regression Models Predicting Suicidal Ideation, Asian Immigrant Women (N =867)**

	Model 1	Model 2	Model 3	Model 4	Model 5
<b><i>Acculturation Status (ref: Assimilated)</i></b>					
Integrated	.41*	.42*	.44*	.41**	.06**
Separated	.20***	.19***	.20***	.21***	.02***
<b><i>Demographic Characteristics</i></b>					
Age at interview	.99	.99	.99	.99	.99
Married/Cohabiting	.34***	.31***	.33**	.36**	.34**
Family size	.89	.91	.95	.95	.94
<b><i>Ethnic identity (ref: Chinese)</i></b>					
Vietnamese	1.07	1.06	1.05	1.11	1.11
Filipino	.50	.47*	.37**	.39**	.39**
Other Asian	.43	.45	.41*	.39*	.40*
<b><i>Socioeconomic Status</i></b>					
Educational level		.86	.79*	.78*	.78*
Employed		1.30	1.22	1.27	1.30
Income-to-Poverty index		1.02	1.02	1.03	1.03
<b><i>Stress and Support</i></b>					
Level of acculturative stress			.97	.99	1.00
Level of family cultural conflict			1.37***	1.38***	1.36***
Frequent attendance at religious services			.95	.94	.94
Received support from family/relatives			1.05	1.00	.99
Perceived support from family/relatives			1.08	1.10	1.08
Received support from friends				1.38**	1.37**
Perceived support from friends				.90	.70**
<b><i>Perceived Support from Friends × Acculturation Status</i></b>					
Integrated					1.37*
Separated					1.55*

NOTE: \*p<.05 \*\*p<.01 \*\*\*p<.001

**Table 5. Odds Ratios from Logistic Regression Models Predicting Suicidal Ideation, Asian Immigrant Men (N =770)**

	Model 1	Model 2	Model 3	Model 4	Model 5
<b><i>Acculturation Status (ref: Assimilated)</i></b>					
Integrated	.73	.66	.74	.72	.49
Separated	2.04	2.06	1.75	1.48	1.14
<b><i>Demographic Characteristics</i></b>					
Age at interview	.99	.99	.98	.98*	.98*
Married/Cohabiting	.38*	.43	.49	.41*	.41*
Family size	.77*	.76*	.75*	.75*	.75*
<b><i>Ethnic identity (ref: Chinese)</i></b>					
Vietnamese	.72	.70	.60	.56	.57
Filipino	2.29*	2.44*	2.79*	2.75*	2.76*
Other Asian	1.38	1.25	1.15	1.21	1.23
<b><i>Socioeconomic Status</i></b>					
Educational level		1.30	1.31	1.29	1.29
Employed		1.02	.99	1.00	1.00
Income-to-Poverty index		.94	.95	.96	.96
<b><i>Stress and Support</i></b>					
Level of acculturative stress			1.02	1.04	1.05
Level of family cultural conflict			1.22**	1.20**	1.20**
Frequent attendance at religious services			1.02	1.09	1.09
Received support from family/relatives			.86	.92	.92
Perceived support from family/relatives			.83*	.85*	.86*
Received support from friends				.75	.76
Perceived support from friends				.98	.93
<b><i>Perceived Support from Friends × Acculturation Status</i></b>					
Integrated					1.07
Separated					1.05

NOTE: \*p<.05 \*\*p<.01 \*\*\*p<.001

Figures.

