

Interpersonal Factors and Suicidal Ideation in Asian American College Freshmen

by

Rita Chang

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Doctoral Committee:

Associate Professor Edward C. Chang, Chair
Professor Albert C. Cain
Professor Christopher M. Peterson
Associate Professor Sean Joe

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Abstract

Despite high rates of suicide among Asian American college students, few studies have examined risk factors for the population. The current study focused on suicidal ideation in Asian Americans at a time of transition: the first year of college. The interpersonal changes (social support, social connectedness and family conflict) associated with freshmen year were expected to predict current ideation as well as ideation one year later. Two-hundred and twenty-four college freshmen (149 women and 75 men) participated at Time 1, and 94 of them (62 women and 32 men) returned usable data at Time 2. Results showed that although all three interpersonal factors at Time 1 predicted current ideation, none of them predicted ideation at Time 2. However, once participants were stratified into groups by acculturation levels, different patterns emerged: The suicidal ideation of highly acculturated individuals was more closely tied to feelings of social disconnectedness. The implications are discussed, along with possible strategies for counseling centers to better identify suicidal students.

Chapter I

Introduction

Suicide is a devastating event that affects not only the victims but also their friends, family, and the larger community, and suicide on college campuses has been a concern for many years (e.g., Westefeld et al., 2006). One study found the rate of suicide among college students to be 7.5 per 100,000 per year during a 10-year period (Silverman, Meyer, Sloane, Raffel, & Pratt, 1997), even though colleges often underreport incidents of suicide or use restricted definitions of suicide to exclude suicides completed at Greek houses and private homes (Haas, Hendin, & Mann, 2003). Gutierrez, Osman, Kopper, Barrios, and Bagge (2000) have argued that although college students die by suicide at lower rates compared with their non-student peers, they may also be engaging in behaviors that will increase their risk later in life. Additionally, those numbers do not take into account suicide-related behaviors and ideation, which are fairly common in the group at around 10% (Brener, Hassan, & Barrios, 1999; Furr, Westefeld, McConnell, & Jenkins, 2001; Kisch, Leino, & Silverman, 2005). Some researchers have found even higher numbers. Meehan, Lamb, Saltzman, and O'Carroll (1992) surveyed college students and found that 54% had considered suicide before and 26% had considered it in the preceding 12 months. In a recent study involving a national consortium of college counseling centers, results indicated a >50% lifetime prevalence of suicidal ideation, a 6% 12-month prevalence, and of those 6%, 14% eventually made an

attempt (Drum, Brownson, Burton Denmark, & Smith, 2009). Such alarming statistics have led to a “call to action” (Westefeld et al., 2006) to identify both risk and protective factors associated with suicide (Gutierrez, 2006; Gutierrez et al., 2002; Range, 2005).

To date, most studies of suicidality in college students have focused on European Americans. The dearth of research on suicide risk and resilience in other ethnic groups such as Asian Americans is concerning because based on existing research on Asian American cognitive styles, cultural values and mental health, there are reasons to believe that certain factors may have especial predictive utility for Asian Americans. Then there are those factors that may be theoretically relevant for Asian Americans, but for which little data exist, and such factors would be useful to examine empirically.

In addition, there are some studies that have pointed to the first year of college as particularly stressful to students because of the many life changes that result from the transition to college, such as the disruption to the social environment, the support network and so forth (Arthur & Hiebert, 1996; Cantor, Norem, Niedenthal, Langston, & Brower, 1987; Kenyon & Koerner, 2009). If the transition to college is not successfully navigated, it may have far-reaching psychological consequences down the line such as depression, academic failure, and so on. The current project examined the risk/protective factors related to the social environment that had predictive utility in a sample of Asian American college freshmen.

Risk and Protective Factors of Suicidal Ideation Related to the Social Environment in Adolescents, Young Adults and College Students

One common theory of why people die by suicide proposes that self-perceived social isolation leads to feelings of not being cared for and not being understood, which

in turn leads to increased risk of suicide (Joiner, 2005). Durkheim (1897/1951) first proposed the link between a lack of social integration and suicidality, and research on suicidality has for the most part supported that theory: A low sense of belonging and support and a high degree of interpersonal conflict tend to be associated with increased suicidal ideation or even attempts (Arria et al., 2009; Boardman, Grimbaldeston, Handley, Jones, & Willmott, 1999; Conner, Britton, Sworts, & Joiner, 2007; Joiner et al., 2009). Bryan, Morrow, Anestis, and Joiner (2010) suggested that low belonging may be especially related to current suicidality (as opposed to past suicidal behaviors). Most of the studies detailed below utilized a predominantly European American sample, and as a result cannot be used to draw conclusions about Asian American suicidality. Nevertheless, they give us some insight into the social factors related to suicidal ideation in adolescents, young adults and college students.

The studies below also operationalize suicidality in different ways. Some define suicidality as number of attempts, but for the most part, suicidality is defined as suicidal ideation, or thoughts and wishes about killing oneself. Although some researchers have argued that suicidal ideation is an imprecise predictor of actual suicidal behavior (e.g., Linehan, Chiles, Egan, Devine, & Laffaw, 1986), Lewinsohn, Rohde, and Seeley (1996) have suggested, suicidal ideation may be best conceptualized as occurring on a continuum of increasing clinical significance, and extreme scores on suicidal ideation scales may in fact have utility in predicting suicide. Also, suicidal ideation is predictive of a variety of other difficulties like psychopathology and problem behaviors, and as a result is in itself worthy of study (Reinherz, Tanner, Berger, Beardslee, & Fitzmaurice,

2006). Nevertheless, in the review of the literature below, studies examining suicidal ideation will be distinguished from studies examining completed suicides or attempts.

Depressed mood, while not a factor related to the social environment per se, is an important predictor of suicide risk, though only a small percentage of adolescents suffering from depression make a suicide attempt (Spirito & Esposito-Smythers, 2006). In a review of the literature, Evans, Hawton, and Rodham (2004) found that depression made a large additional contribution to the variance in suicidal thoughts and behaviors even after controlling for a range of other factors. Rates of major depression ranged from 23% to 52% in a review of seven psychological autopsy studies (Flisher, 1999).

Lewinsohn et al. (1996) compared individuals with “pure” depression with individuals with “pure” anxiety, disruptive behavior and substance disorders and found that suicidal ideation rates were highest in those with only depression. Additionally, several longitudinal studies have identified depression as a risk factor for suicidal ideation and attempts (e.g., Brent et al., 1993; Lewinsohn et al., 1994, Rao, Weissman, Martin, Hammond, 1993). Flisher (1999) has suggested that the relation between depression and suicide may be threefold: Depression may be a manifestation of suicidal thoughts/feelings, suicidal phenomena may be a manifestation of depression, or both suicide and depression may be manifestations of a third variable.

A lack of belonging may be another one of the most important risk factors for suicide. Low social support/belonging predicted suicidal ideation beyond depression indices in two samples of young adults (Arria et al., 2009; Joiner et al., 2009). Similarly, a study looking at the effects of loneliness found that suicidal ideation increased with the degree of loneliness experienced (Stravynski & Boyer, 2001). It is important to note that

in the above studies, lack of belonging was measured with instruments assessing for social support, even though social support (i.e., the sense that one has family/friends willing to help with one's problems) is arguably conceptually different from a sense of belonging (i.e., the sense that one "fits" with one's environment; Lee & Robbins, 1995). In fact, Williams and Galliher (2006) tested several models of the pathways to depression and self-esteem from social connectedness, social support and social competence, and they concluded that social connectedness might be a separate construct from social support. At the moment, it is unclear how social connectedness, as defined by a sense of belonging, relates to suicidality in young adults.

In addition to social isolation, a high degree of family conflict may contribute to increased levels of suicidal ideation among college students. Brent et al. (2009a) found that family conflict predicted time to suicidal event in a sample of adolescent psychiatric patients, and Brent, Kolko, Allan, and Brown (1990) found that suicidal intent was related to high family conflict. Family conflict may also interact with depression to produce suicidal ideation in adolescents (Adams & Adams, 1996), though one study found that although family conflict distinguished suicide attempters from non-depressed non-attempters, it did not distinguish between attempters and depressed non-attempters (de Wilde, Kienhorst, Diekstra, & Wolters, 1993).

With regard to protective factors, many studies have indicated that family/peer support is important for adolescents and college students (for a full review, see King & Merchant, 2008), though the definition of social support varies and different measures focus on different types of support. Some scales focus on emotional support (e.g., Zimet, Dahlem, Zimet, & Farley, 1988), whereas others also assess for physical/monetary

support (e.g., Norbeck, 1984). For this study, a measure assessing only for emotional support was used because it was more theoretically relevant to the research question, namely, how interpersonal experiences affect the mood and suicidal ideation of college students.

In studies, family cohesion emerged as a significant negative predictor of suicidal ideation in European American college students (Eshun, 2003). Parent relations was the most consistent protective factor against suicide in a national sample of adolescents (Kidd, Henrich, & Brookmeyer, 2006). A few studies of adolescents hospitalized for suicide have indicated a link between lower levels of peer and family support and suicidal ideation (Groholt, Ekeberg, & Wichstrom, 2000; Prinstein, Boergers, & Spirito, 2000). Interestingly, there may be gender differences in the protective effects of peer/family support. Kerr, Preuss, and King (2006) found that among female adolescent psychiatric inpatients, family support was negatively related to suicidal ideation, but among male adolescent psychiatric inpatients, peer support was positively related to suicidal ideation. It may be that adolescent males with internalizing or externalizing problems are more likely to seek out similar-minded peers, which in turn increases their risk for suicide.

It is important to note, though, that the "meaning" of social support may vary across cultures. Kim, Sherman, and Taylor (2008) have argued that for less acculturated Asians, actively seeking social support is often considered a negative because it may exacerbate relational consequences. More specifically, while it is considered acceptable to want to be in the presence of friends or family members following a stressful incident, it is *not* considered acceptable to openly talk about the stressful incident. In general, less acculturated Asians may be less likely to seek social support than European Americans.

Among the studies on college students and suicidal ideation, a few have focused on the experiences of college freshmen, who arguably suffer from more elevated levels of stress compared with other college students because of the enormity of the transition they are facing. For the first time in their lives, many of them are being separated from their family and must live independently; their expectations for autonomy may differ from the expectations their families hold for them, which may then result in family conflict (Kenyon & Koerner, 2009). They must establish new social support networks within the microcosm of the campus while trying to maintain old high school friendships (Arthur & Hiebert, 1996; Cantor et al., 1987). Additionally, they must develop a sense of themselves as a member of the college community, figuring where they fit and how they fit. One study that looked at help-seeking patterns at a college counseling center found that the freshmen who sought help were more likely to have problems with concentration, appetite changes, feelings of worthlessness and suicidal ideation compared with their senior counterparts (Kashani & Priesmeyer, 1983). College freshmen who perceived their family relationships as conflict-ridden were more likely to have suicidal thoughts than college students who did not feel that way (Wright, 1985).

More general studies about college freshmen mental health have produced similar findings: Dyson and Renk (2006) found that the levels of family stress and college change stress significantly predicted levels of depression in college freshmen, and there is evidence to suggest that low family/peer support may predict physical symptoms as well (Zaleski, Levey-Thors, & Schiaffino, 1998). One study found that freshmen tended to have overly optimistic predictions about the ease of making new friends at college and maintaining relationships with old friends, and that the greater the discrepancy between

expectations and reality, the greater the distress (Paul & Brier, 2001). And in a study of European American and African American college freshmen, higher levels of parental support were related to lower levels of depression for both groups (Mounts, 2004). Interestingly, the relationship between parental support and depression was mediated by a sense of belonging to the campus, suggesting that conflict at home might have had an effect on students' sense that they belonged to their new community.

As previously mentioned, most of the extant studies on college student suicide have used predominantly European American samples. The large representation of Asian American students on college campuses and the growth of Asian Americans as an ethnic group in the U.S. necessitate an improvement in assessment procedures for suicide risk and resilience within the population. Specifically, U.S. Census data show that about 69% of Asians in the U.S. are foreign-born and that most of them moved to the U.S. within the past 20 years, indicating increased immigration; Asian Americans are also more likely than the total population to have a bachelor's degree (U.S. Census Bureau, 2000). Additionally, given that the freshmen year of college represents a significant social transition for most students, it seems all the more important to examine how the transition might affect Asian Americans, who have been shown in previous studies to have a more interdependent self-construal than their European American counterparts (Markus & Kitayama, 1991).

Not Just Honor Suicides: Current Understanding of Risk and Protective Factors in Asian American College Students

A PsycINFO search (March 20, 2010) revealed that of the 652 peer-reviewed articles published on suicide among college students from 1955 to 2010, only eight

looked at Asian Americans, even though Asian Americans often represent a large percentage of the student population. For example, at the University of Michigan, students of Asian descent form the largest ethnic/racial minority group (41% in 2009; Office of the Registrar, 2009). The dearth of research on suicide risk and resilience within Asian Americans may be related to the stereotype of the group as a “model minority” without emotional difficulties, but closer inspection of data reveals that is not the case. For instance, Asian American women between the ages of 15-24 have the second highest percentage of deaths by suicide next to Native Americans, and Asian American women from 20-24 have one of the highest suicide rates across all racial/ethnic groups (U.S. Department of Health and Human Services, 2007). Related is the fact that suicide accounts for a larger proportion of deaths of 15-24- (and especially 20-24-) year old Chinese and Japanese Americans than for European Americans (Leong, Leach, Yeh, & Chou, 2007). In addition, Kisch et al. (2005) found that Asian American college students were significantly more likely than European American students to seriously consider attempting suicide. Other studies have suggested that Asian Americans suffer from problems like major depression, dysthymia and phobia at rates similar to those of European Americans (e.g., Zhang & Snowden, 1999), and mental health concerns may be an especial problem for Asian American students enrolled at highly selective universities, where they face increased pressures to conform to the “model minority” stereotype (e.g., Alvarez, Juang, & Liang, 2006), navigate the complexities of living between two different cultures (Kim, Brenner, Liang, & Asay, 2003; Suinn, Rickland-Figueroa, Lew, & Vigil, 1987), and meet familial standards of academic success (Peng & Wright, 1994; Sue & Okazaki, 1990).

The few extant studies on Asian American suicide indicate that there are important differences between Asian and European Americans on particular risk factors, but because there is such a lack of research on Asian American suicide, this overview of the literature will include studies with Asian participants as well, with the understanding that Asians and Asian Americans are not identical groups. But regardless of the population examined, it seems clear that European American risk and protective factors may not always apply to Asians/Asian Americans. Research has demonstrated robust differences in the cognitive styles of individuals from predominantly Eastern cultures and individuals from predominantly Western cultures. Easterners tend to be more collectivistic, with a view of the self that encompasses the important groups (in-groups) to which they belong, and Westerners tend to be more individualistic, with a view of the self as an autonomous entity (Markus & Kitayama, 1991). Given those differences in self-construal, it is possible that risk and protective factors that are more relevant to one's social/familial situation may hold more predictive value for Asian Americans. That is, factors with an important social component, such as family support and conflict, may be especially important in the assessment of risk. In fact, a number of studies looking at family conflict in multi-racial samples found that Asian American college students reported a greater likelihood of family conflict compared with their non-Asian peers (Greenberger & Chen, 1996; Lee & Liu, 2001). Asian Americans may even have different ways of thinking about the causes of suicide compared with other groups—in an article discussing the importance of culture in Asian American suicide, Shiang (1998) interestingly noted that in Western cultures, the question one asks when a person dies by suicide is “Why did this person ‘choose’ to commit suicide?” But in Eastern cultures, the

question one asks is “Who drove this person to suicide?” Below is a discussion of several factors hypothesized to be closely related to Asian American suicidal ideation, along with factors that have already emerged in the literature as potentially predictive of suicidal ideation.

Any discussion of Asian American suicidal ideation that assumes homogeneity in the group is misleading, as Asian Americans differ greatly from one another in terms of their level of acculturation to American society. Accordingly, the risk and protective factors for Asian Americans who are still attached to their cultures of origin may be very different from factors for Asian Americans who have largely “Western” values. For example, Asian Americans with more traditional Eastern views may be more sensitive to the opinions of their family members, and high expectations or criticisms from family may be more closely linked to mood and suicidal ideation for them. Consistent with that idea, Lau, Jernewall, Zane, and Myers (2002) found that in a clinical sample of Asian American children and adolescents, parent-child conflict interacted with acculturation level to predict suicidal behaviors. Compared with more acculturated youths, less acculturated youths were at greater risk for suicidal behaviors when they experienced high levels of intergenerational conflict. Studies involving Asian Americans should include some measure of acculturation to ensure that researchers do not draw erroneous conclusions about the whole. And as of yet, no study has examined how acculturation and family conflict interact to predict suicidal ideation specifically.

As with European Americans, depression is implicated as a risk factor for suicidal ideation among Asian Americans, often as a mediator between other risk factors and ideation (e.g., Cheng & Chan, 2007; Wong, Chow, & McBride-Chang, 2006). Yang and

Clum (1994) examined suicidal ideation in Asian international students and found that it was correlated with higher levels of depression and hopelessness. Additionally, suicidal ideation, depression and hopelessness were also correlated with life stress, loneliness, and problem-solving deficits. Path analysis showed that other predictor variables such as life stress predicted suicidal ideation through depression, suggesting that they increase Asian students' risk for suicide by increasing depressive symptoms.

Several other studies have pointed to the strong influence of in-groups (especially the family unit) on suicidal ideation in Asian/Asian American adolescents. Most recently, Cheng et al. (2010) examined suicidal ideation and attempts in Asian American adults using a national data set and found that family conflict was positively correlated with both ideation and attempts. A few studies on Chinese adolescents have shown that family conflict represents a major risk factor for suicidal ideation and behaviors (Liu & Tein, 2005; Sun, Hui, & Watkins., 2006). Lee, Wong et al. (2006) examined Hong Kong adolescents and found that low levels of family cohesion and support and high levels of parent-adolescent conflict were related to depression and suicidal ideation, and that depression mediated the link between the family factors and suicidal ideation. Family conflict also appears to be linked to other forms of distress in Asian Americans, such as lower levels of positive affect and life satisfaction and higher levels of negative affect and somatic symptoms, though social support may buffer some of the negative effects (Berkel & Constantine, 2005; Lee & Liu, 2001; Lee, Su, & Yoshida, 2005). Abe-Kim, Takeuchi, and Hwang (2002) found that high family conflict was a strong predictor of medical and mental health help-seeking, yet another finding that points to the significant effects of family conflict on Asian American health.

In terms of the effects of social/family support, Cheng and Chan (2007) found that a positive attitude toward death, depressive symptoms and substance use predicted suicide *plans* as well as *attempts* in Hong Kong adolescents, but that those risks were counterbalanced by the support of family and friends. Interestingly, family support served as a more significant buffer than friends support. As with Lee et al. (2006), the effects of stress on suicidality were mediated through depressive symptoms. Several other studies on Chinese adolescents and college students have revealed a similar protective effect of family cohesion on suicidal ideation (Sun et al., 2006; Zhang & Jin, 1996). A good relationship between fathers and daughters and between mothers and sons has been shown to be protective against suicidal ideation in Asian American youths and adolescents (Liu, 2005). Yang and Clum (1994) found that perceived social support negatively predicted depressive symptoms; perceived social support also negatively predicted hopelessness. Those findings are, of course, interesting given Kim et al.'s (2008) argument about social support in Asians, especially given that the instruments used by Cheng and Chan (2007), Sun et al. (2006) and Zhang and Jin (1996) were all "Western" measures of social support (i.e., measured that had been validated on a predominantly non-Asian population and that defined "support" as involving the sharing feelings and confiding in others) with items like "My friends and I are very open about what we think about things," "I have a deep sharing relationship with a number of friends," and "When you have problems, can you talk to your mother or father about them?" The question therefore remains whether social support, as it is currently measured by instruments developed by/for European Americans, can be adequately assessed in Asian Americans.

There are additional factors that may be theoretically linked to the prediction of suicide risk, though no studies have examined them in Asian Americans yet. For example, few researchers have considered the role of social connectedness and its relation to suicidal ideation. Social connectedness refers to a feeling of belongingness to a larger social context (Lee & Robbins, 1995). One of the most widely used measures of social connectedness, the Social Connectedness Scale, was developed by Lee and Robbins through principal-components analysis to assess for three aspects of belongingness: connectedness, affiliation and companionship. Individuals lacking a feeling of connectedness may have lower levels of life satisfaction, and higher levels of loneliness, depression, hostility and social discomfort (Lee, Draper, & Lee, 2001). Social connectedness was also more closely linked to trait anxiety than social support and collective self-esteem were among college women (Lee & Robbins, 1998). Lee et al. (2001) have hypothesized that beyond feelings of loneliness, social connectedness may also have an effect on the ways individuals appraise the value of their social groups and behave in social situations. Though no studies have examined the effects of social connectedness/disconnectedness on depression or suicidal ideation in Asian Americans, the construct has theoretical importance because of the importance Asian culture traditionally places upon one's integration into one's social context. Additionally, late adolescence is a formative period for the development of interpersonal bonds and social networks, and it is possible that some Asian American college students experience more difficulty doing so as a result of their minority status and the accompanying peer rejection. It may be worthwhile to observe the relation between suicidal ideation and social connectedness among Asian American college students from both diverse colleges

and colleges with a predominantly European American population to see if minority status is in fact related to feelings of disconnectedness.

Given extant studies, what can we speculate about Asian American suicidal ideation? One recurring theme seems to be the impact of depressive symptoms on suicidal phenomena. Many psychosocial risk factors for suicide are mediated through depression (Cheng & Chan, 2007; Lee et al., 2006; Sun et al., 2006; Yang & Clum, 1994). In addition, Lau et al. (2002) reported that depressed Asian American youth were four times more likely to display suicidal behavior when compared with Asian American youth with other diagnoses. Perceived peer and family support may serve as buffers against suicidal thoughts and behaviors in Asian American adolescents and college students while family conflict increases suicidal ideation and behaviors (Cheng & Chan, 2007; Lee et al., 2006; Yang & Clum, 1994). Not enough evidence is available at the moment to draw conclusions regarding the effects of social connectedness.

The goal of the current project was to delineate the pathways to and away from suicidal ideation by examining risk and protective factors that may be relevant to Asian Americans, namely, social and interpersonal factors. It sought to take a closer look at Asian American college student suicide by following a group of freshmen over their first year of college to see which risk and protective factors at Time 1 best predicted suicidal ideation at Time 2. The decision to examine suicidal ideation rather than attempts or completion as the dependent variable was intentional, for the reasons stated above. Also, because the study sought to examine the factors linked to suicide risk in a non-clinical sample of Asian Americans, using attempts or completion as dependent variables would have severely limited the amount and the richness of the data that could be gathered. The

hypotheses were as follows. First, it was expected that past and current depressive symptoms, along with past suicidal ideation, would be the best positive predictors of suicidal ideation at Time 2. More specifically, it was predicted that current suicide ideation would be the most robust predictor of later suicidal ideation, followed by current depressive symptoms and then past depressive symptoms, because measures of depressive symptoms typically assess for transient mood states rather than depressive "traits." Second, it was expected that both family conflict and social support at Time 1 would contribute additional significant variance to the prediction, with family conflict positively predicting and social support negatively predicting suicidal ideation. Family conflict and social support were expected to play relatively equal though opposite roles in the prediction. Finally, it was expected that social connectedness at Time 1 would significantly predict additional unique variance in suicide ideation, above and beyond what is accounted for by current depressive symptoms, past suicide ideation, family conflict, and social support. With respect to acculturation, it was expected that, consistent with the findings of Lau et al. (2002), the suicidal ideation of individuals with lower levels of acculturation would be more significantly affected by these interpersonal variables, given the great importance that Asian cultures traditionally place on interdependency.

Chapter II

Method

Participants

Two-hundred-and-fifty Asian American freshmen from 4-year colleges across the United States participated in Time 1 of this Internet study. The list of colleges was compiled through the Internet database of a well-known college testing/placement board. First, a recruitment email was sent out to all the students who self-identified as Asian American at a large Midwestern university; advertisements were also posted around campus to broaden study exposure. Then, for more geographically diverse as well as greater sampling, participants from other colleges were contacted through the listservs of Asian American student groups at those institutions. In return for participating at Time 1, they each received a gift card of \$10. Twenty-six of the participants did not complete the measures in the study and as a result were excluded from the analysis. Of the remaining participants, 149 were women and 75 were men. A total of 130 people participated in Time 2 of the study, but because only 94 of the identification codes from Time 1 matched up with the codes from Time 2, only those cases were used in the analysis. Sixty-two women and 32 men were in the final sample. In return for participating at Time 2, each participant received a \$20 gift card.

Measures

Acculturation: The Suinn-Lew Asian Self-Identity Acculturation Scale (SL-ASIA; Suinn, Ahuna, & Khoo, 1992) is a 26-item measure of Asian Americans' participation in the practices of their culture of origin versus the practices of American culture. Additionally, it contains items that measure the degree to which Asian Americans identify with their culture of origin. It is self-rated on a 5-point scale, and for each question the choices range from monocultural Asian to monocultural American (*1=monocultural Asian responses* and *5=monocultural American responses*). Items include "Do you participate in Asian occasions, holidays, traditions, etc.?" and "Whom do you now associate with in the community?" In studies, alphas for the SL-ASIA ranged from .88 to .91, and scores correlated highly with total years attending school in the U.S. ($r = .61$), years living in the U.S. ($r = .56$) and self-ratings of acculturation ($r = .62$). The two-month test-retest reliability of the SL-ASIA is high ($r = .92$; Johnson, Wall, Guanipa, Terry-Guyer, & Velasquez, 2002).

Suicidal ideation: The Adult Suicidal Ideation Questionnaire (ASIQ; Reynolds, 1991a) is a 25-item self-report measure of suicidal ideation in adults 18 years and older, with questions about thoughts/plans, the anticipated response of others and suicidal wishes. Participants rate on a 7-point scale (*1=I never had this thought* and *7=almost every day*) the extent to which they've had each thought over the past month. Items include "I thought about killing myself," "I thought about how I would kill myself," and "I thought that if I had the chance I would kill myself." In a sample of college students, the ASIQ had an alpha of .97, and a multiple correlation of .67 with measures of

depression, hopelessness, anxiety and self-esteem, as well as a past history of suicide attempts.

Depressive symptoms: The Patient Health Questionnaire (PHQ; Kroenke, Spitzer, & Williams, 2001) is a 9-item measure of depressive symptoms that was created to help physicians quickly assess for depressive symptoms in health care settings. The PHQ includes questions about sadness, anhedonia, concentration and other symptoms frequently associated with depression, and participants rate on a scale of 1 to 4 (*1=not at all* and *4=nearly every day*) the extent to which they are experiencing each particular symptom. Examples of symptoms include "feeling down, depressed, or hopeless" and "feeling tired or having little energy." The scale has demonstrated satisfactory reliability and validity, with alphas ranging from .86 to .89. A score of ≥ 10 on the PHQ had a sensitivity of 88% and a specificity of 88% for major depression.

Social Connectedness: The Social Connectedness Scale (SCS; Lee & Robbins, 1995) is an 8-item measure of an individual's sense of belonging to a larger environment or social context. Participants rate on a 6-point scale (*1=strongly disagree* and *6=strongly agree*) the extent to which they agree with items like "I don't feel I participate with anyone or any group." The SCS measures three aspects of belonging (i.e., connectedness, affiliation and companionship), and in a sample of college students, the SCS had an alpha of .91 and test-retest reliability of .96 over a two-week period. The SCS has been found to be significantly correlated with loneliness ($r = -.80$) and distress ($r = -.55$) and not correlated with interdependent self-construal ($r = .15$) and collective self-esteem ($r = .07$).

Family Conflict: The six questions assessing for family conflict are taken from Schuster, Kessler, and Aseltine (1990). On a 4-point scale ($1=not\ at\ all$ and $4=a\ lot$), participants indicate how often their family members make too many demands on them, make them feel tense, argue with them, criticize them, let them down, and get on their nerves. Hwang, Chun, Kurasaki, Mak, and Takeuchi (2000) established the factor validity of these six particular items in approximately 1,100 Chinese Americans: Alpha reliability in the sample for these six items was .85. It is important to note that the study, which looked at both family support and family conflict, found minimal correlations between the two variables in Chinese Americans ($r = -.16$), suggesting that the constructs are not simply poles along a single dimension. The Schuster et al. (1990) study found an alpha reliability of .74 for the same six items (in a predominantly non-Asian sample), and for convergent validity, found that the six items were significantly positively correlated with depression ($r = .11$).

Perceptions of peer/family support: The Multidimensional Scale of Perceived Social Support (MSPSS; Zimet, Dahlem, Zimet, & Farley, 1988) is a 12-item self-report questionnaire that assesses degree of family, friend, and significant-other support. Participants rate on a 7-point scale ($1=very\ strongly\ disagree$ and $7=very\ strongly\ agree$) how much they find each statement to be true. Items include "I get the emotional help and support I need from my family" and "I can talk about my problems with my friends." Alpha reliability in a sample of college students was .88 and test-retest reliability over a 2-3 month period was .85. Family support on the MSPSS was inversely correlated with symptoms of depression ($r = -.24$) and symptoms of anxiety ($r = -.18$), whereas support from friends was inversely related to depression ($r = -.24$) but not anxiety.

Procedure

At Time 1 (beginning of the first school year), the participants completed the ASIQ and PHQ to establish baseline levels of suicidal ideation and depression; the SL-ASIA to measure levels of acculturation; and the MSPSS, SCS and questions about family conflict. One year later at Time 2 (beginning of the second school year), all of the measures were re-administered with the exception of the SL-ASIA as acculturation levels were not expected to change significantly over the span of one year. There were a couple of reasons why the decision was made to wait exactly one year before collecting Time 2 data. First, collecting it earlier (e.g., at the end of the first school year) might have interfered with essential tasks for the students like finals and moving-out of the dormitories, which would have likely severely decreased the number of people who would have been willing to participate at Time 2. Second, Van Orden et al. (2008) found that in college students, belongingness levels tend to go down in the summer and suicidal ideation tends to go up. Collecting Time 2 data earlier might have led to the false assumption that the sample as a whole was becoming more suicidal and less connected.

Chapter III

Results

The ASIQ mean score in the sample was 40.2 ($SD = 19.6$). Figures III.1 and III.2 show the distributions of ASIQ scores at Time 1 and Time 2, respectively. Given that the minimum score (no suicidal ideation) on the ASIQ is 25, about 29% of the sample have *never* had thoughts of suicide. Overall, about 7% of the sample at Time 1 and 4.6% of the sample at Time 2 had ideated within the past month (represented by a score of 75 or above on the ASIQ). The prevalence rates are on par with what other college student studies have found (e.g., Drum et al., 2009). Regarding acculturation and the representativeness of the current sample, data showed a range of SL-ASIA scores from 56 to 110 (out of a possible range of 26-130). In other words, the scores ranged from an average of "2" (mostly monocultural Asian) on the scale to an average of "4" (mostly monocultural American). The mean of the total sample was 83 ($SD = 10$), indicating an average item score of just over "3" (bicultural). The range and the means here were consistent with what has been found in other samples of Asian American college students (Johnson et al., 2002; Suzuki & Greenfield, 2002).

Figure III.1. Distribution of Suicidal Ideation Scores at Time 1

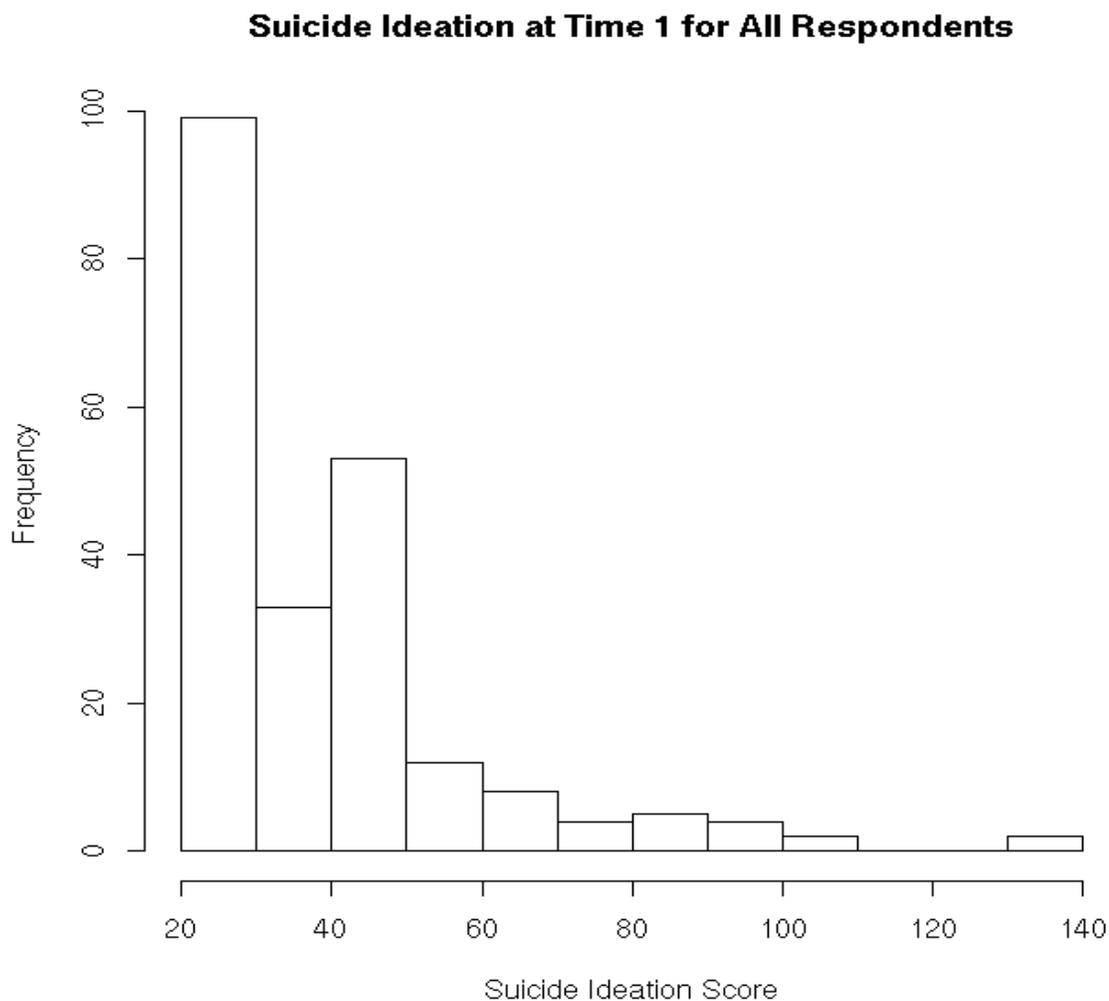
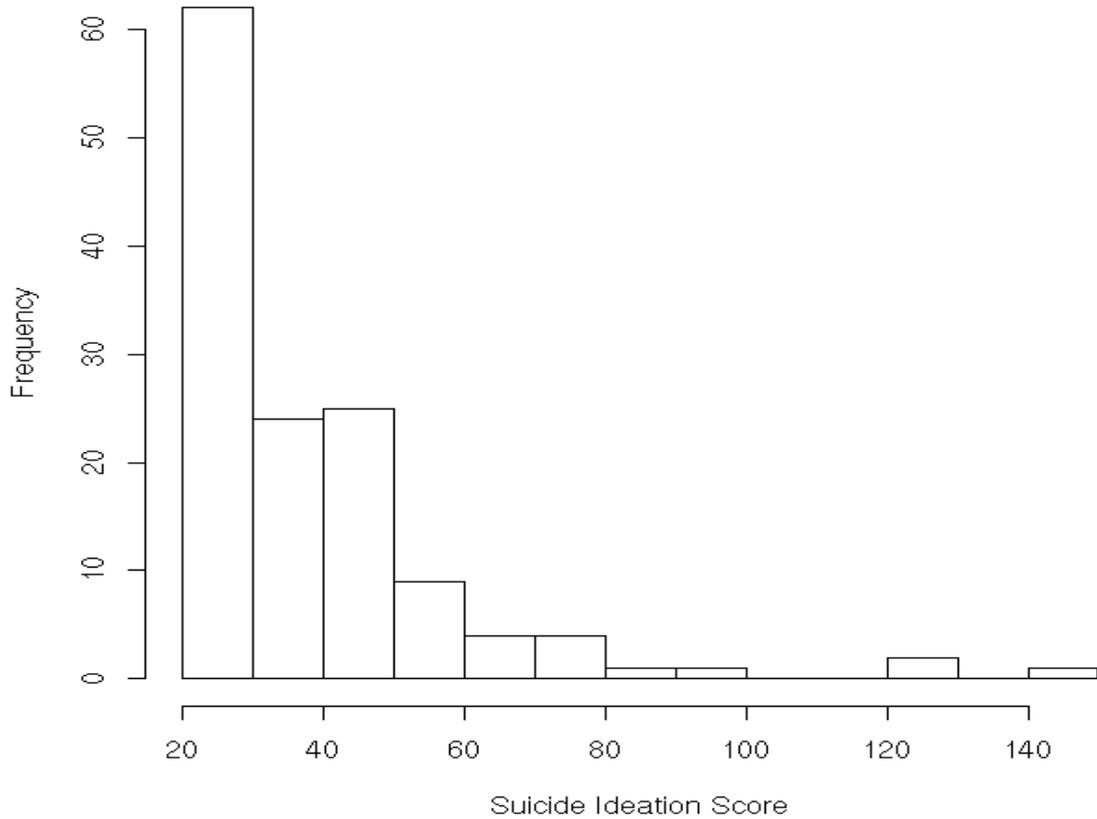


Figure III.2. Distribution of Suicidal Ideation Scores at Time 2

Suicide Ideation at Time 2 for All Respondents



Relations among Variables at Time 1

Table III.1 shows the correlations of the scores from all of the measures included in this study at Time 1. As the table shows, the scores had weak to moderate associations but were not wholly redundant with one another. To determine if there were any significant sex differences, a series of independent t tests was conducted on Time 1 ASIQ, PHQ, SCS, MSPSS and Family Conflict scores. Only one difference emerged: Women endorsed more depressive symptoms than men at Time 1 ($M = 15.77$, $SD = 4.64$

and $M = 13.91$, $SD = 4.01$, respectively). As that was the only sex difference this study found at Time 1, sex was collapsed for all subsequent analyses.

Table III.1. *Zero-order Correlations between Acculturation, Suicidal Ideation, Depressive Symptoms, Social Connectedness, Social Support and Family Conflict*

	1	2	3	4	5	6
SL-ASIA	1.00					
ASIQ	-.03	1.00				
PHQ	-.04	.54**	1.00			
SCS	-.12	.43**	.48**	1.00		
MSPSS	.19**	-.34**	-.32**	-.47**	1.00	
FC	.02	.27**	.32**	.27**	-.32**	1.00

Note. SL-ASIA = Suinn-Lew Asian Self-Identity Acculturation Scale; ASIQ = Adult Suicidal Ideation Questionnaire; PHQ = Patient Health = Questionnaire; SCS = Social Connectedness Scale; MSPSS = Multidimensional Scale of Perceived Social Support; FC = Family Conflict
** $p < 0.01$.

To examine the utility of the various measures (i.e., depression, family conflict, social support and connectedness) in predicting suicidal ideation, a hierarchical regression was conducted with each of the measures. In step one, scores on the PHQ were entered as depression is one of the better extant predictors of suicidal ideation. MSPSS and family conflict scores were entered in step two. Finally, SCS scores were entered in step three. Results of these analyses are presented in Table III.2. For predicting suicidal ideation, PHQ scores accounted for 30% of the variance. Family conflict and MSPSS scores accounted for an additional 3% of the variance, and SCS

scores a significant additional 2% after that. To determine whether the SCS scores accounted for a small, medium, or large amount of the variance in ASIQ scores, this study used Cohen's (1977) convention for small ($f^2 = .02$), medium ($f^2 = .15$), and large ($f^2 = .35$) effects and found a small effect size ($f^2 = .02$). The full regression model for predicting suicidal ideation at Time 1 accounted for 35% of the variance ($f^2 = .52$) in ASIQ scores, $F(4, 199) = 26.94, p < .001$.

Table III.2. *Hierarchical Regression Analyses Showing Amount of Variance in Suicidal Ideation Measure at Time 1 Accounted for by Depressive Symptoms, Family Conflict, Social Support, Connectedness, and Depressive Symptoms x Connectedness Scores at*

<i>Time 1</i>						
<i>Step</i>	<i>Variables Added</i>	<i>B</i>	<i>R²</i>	<i>ΔR²</i>	<i>F</i>	<i>P</i>
1	PHQ	0.40***	0.30	0.30	85.04	< 0.01
2	Conflict/Support		0.32	0.03	32.61	< 0.01
	MSPSS	-0.08				
	FC	0.08				
3	SCS	0.19*	0.34	0.02	26.94	< 0.01
1	PHQ	0.38***	0.29	0.29	87.02	<0.01
2	SCS	0.21**	0.33	0.04	51.91	<0.01
3	PHQ x SCS	0.20**	0.35	0.04	40.16	<0.01

Note. PHQ = Patient Health Questionnaire; SCS = Social Connectedness Scale; MSPSS = Multidimensional Scale of Perceived Social Support; FC = Family Conflict
 * $p < 0.05$. ** $p < 0.01$. *** $p < 0.001$.

To examine the relationship between depressive symptoms and social connectedness and how it predicts suicidal ideation, a hierarchical regression was conducted with PHQ scores entered in step one, SCS scores entered in step two, and the interaction term entered in step three (see Table III.2). PHQ scores accounted for 29% of the variance, SCS scores for a significant additional 4%, and the interaction term for another significant 4%. A closer look at the interaction revealed that when individuals were high in both depressive symptoms and feelings of disconnectedness, their suicidal ideation was significantly higher than if only depressive symptoms or only disconnectedness were high. The full model for predicting suicidal ideation accounted for 36% of the total variance ($f^2 = .56$), $F(3, 211) = 40.16, p < .001$.

To examine the relationship between acculturation and family conflict, a hierarchical regression was conducted (see Table III.3). Family conflict scores were entered first, followed by each individual level of acculturation as measured by SL-ASIA scores, and then followed by the interaction term. In the first model, FC scores accounted for a significant 7% of the variance, low acculturation accounted for 3%, and the interaction term accounted for a significant additional 2%. In the second model, family conflict scores accounted for 7% of the variance, medium acculturation accounted for 1%, and the interaction term accounted for 0%. Finally, in the third model, family conflict scores accounted for 7%, high acculturation for 2% and the interaction for 0%. The interaction was in the same direction as noted in Lau et al. (2002): Low-accultured students were more vulnerable to suicidal ideation when family conflict was high.

Table III.3. *Hierarchical Regression Analyses Showing Amount of Variance in Suicidal Ideation Measure at Time 1 Accounted for by Acculturation and Acculturation x Family*

Conflict Scores at Time 1

<i>Step</i>	<i>Variables Added</i>	<i>B</i>	<i>R²</i>	<i>ΔR²</i>	<i>F</i>	<i>P</i>
1	<i>FC</i>	0.21**	0.07	0.07	16.56	< 0.01
2	<i>Low Accult.</i>	-0.51	0.10	0.03	11.21	< 0.01
3	<i>FC x Low Accult.</i>	0.30*	0.12	0.02	9.04	< 0.01
1	<i>FC.</i>	0.33***	0.07	0.07	16.56	<0.01
2	<i>Med. Accult.</i>	0.23	0.08	0.01	9.39	<0.01
3	<i>FC x Med. Accult.</i>	-0.15	0.09	0.00	6.58	<0.01
1	<i>FC</i>	0.33***	0.07	0.07	16.56	<0.01
2	<i>High Accult.</i>	0.13	0.09	0.02	10.12	<0.01
3	<i>FC x High Accult.</i>	-0.11	0.09	0.00	6.93	<0.01

Note. FC = Family Conflict
 * $p < 0.05$. ** $p < 0.01$. *** $p < 0.001$.

Demographic Differences between Participants Who Did and Did Not Respond at Time 2

The means, ranges, and standard deviations of scores for participants who did and did not respond at Time 2 are listed in Table III.4. As the table shows, the scores were

very similar between the two groups, suggesting that the attrition the study suffered was not due to important factors such as higher levels of depression/suicidal ideation among the participants who left. The ASIQ mean score in the sample of Time 2 participants was 39.8 ($SD = 20.2$), suggesting that the students who participated and who had usable data for Time 2 had similar levels of suicidal ideation compared with those who participated only at Time 1.

Table III.4. *Means and Ranges of Participants Who Responded at Time 2 Versus Participants Who Did Not*

Scale	Range	Did Not Participate		Participated		
		M	SD	Range	M	SD
ASIQ	25-137	40.5	19.2	25-140	39.8	20.2
PHQ	9-31	15.1	4.6	9-33	15.1	4.2
FC	6-24	16.2	3.7	6-24	15.3	3.8
SCS	8-46	21.3	10.3	8-45	21.5	10.1
MSPSS	14-84	64.4	13.2	14-84	65.8	11.6
SL-ASIA	57-110	82.2	10.4	59-104	83.5	9.9

Note. ASIQ = Adult Suicidal Ideation Questionnaire; PHQ = Patient Health Questionnaire; SCS = Social Connectedness Scale; MSPSS = Multidimensional Scale of Perceived Social Support; FC = Family Conflict

Other demographic differences are as follow: At Time 1, individuals identifying as of Chinese descent made up 60.7% of the sample. At Time 2, they made up 64.8% of the sample, suggesting that more Chinese Americans had usable data for Time 2 compared with other ethnic groups. Similarly, whereas individuals identifying as

Christians made up 33.7% of the sample at Time 1, they made up 45.7% of the sample at Time 2. Conversely, whereas individuals who did not identify as belonging to any particular religion made up 51.2% of the sample at Time 1, they made up only 40.4% of the sample at Time 2. No other differences were noted. Table III.5 shows an overview of the demographic information from Time 1 and Time 2. The implications of the findings are discussed below.

Table III.5. *Demographic Changes from Time 1 to Time 2*

	<i>Percent at Time 1</i>	<i>Percent at Time 2</i>	<i>Percent Difference</i>
<i>Female</i>	65.3	66.3	+1.0
<i>Male</i>	34.7	33.7	-1.0
<i>Chinese</i>	60.7	64.8	+4.1
<i>Korean</i>	20.5	19.8	-0.7
<i>Japanese</i>	4.9	4.4	-0.5
<i>Multi-racial</i>	2.2	2.2	0.0
<i>Other</i>	11.6	8.8	-2.8
<i>Christian</i>	33.7	45.7	+12.0
<i>Atheist</i>	7.7	9.6	+1.9
<i>Buddhist</i>	7.3	4.3	-3.0
<i>No Stated Religion</i>	51.2	40.4	-10.8

Relations among Variables at Time 1 and Time 2

Among participants whose responses could be matched between Time 1 and Time 2, a series of paired t-tests were conducted to determine if there were group-level differences in suicide ideation, depression, social connectedness, family conflict and social support between Time 1 and Time 2. No significant differences were found, suggesting that as a whole, the participants were not becoming more or less suicidal or depressed, and conflict, support and connectedness were not increasing or decreasing following the freshmen year.

A hierarchical regression analysis was conducted to see which factors at Time 1 would best predict suicidal ideation at Time 2. In step one, scores on the PHQ and ASIQ from Time 1 and on the PHQ from Time 2 were entered to control for baseline levels of suicidal ideation and depression as well as current levels of depression. In step two, scores from the MSPSS and family conflict scales at Time 1 were entered. In step three, Time 1 SCS scores were entered, and in step four, Time 2 SCS scores were also entered to see if the effects of social connectedness at Time 1 would still hold after controlling for social connectedness at Time 2. As Table III.6 shows, neither SCS scores at Time 1 or Time 2 accounted for any additional significant variance in predicting Time 2 suicidal ideation scores. Unsurprisingly, baseline PHQ and ASIQ scores along with current PHQ scores accounted for the largest percentage of variance at 69% ($f^2 = 2.23$), and the full regression model for predicting suicidal ideation at Time 2 accounted for 71% ($f^2 = 2.45$) of the variance in Time 2 ASIQ scores $F(7, 71) = 23.96, p < .001$.

Table III.6. *Hierarchical Regression Analysis Showing Amount of Variance in Suicidal Ideation Measure at Time 2 Accounted for by Depressive Symptoms, Family Conflict, Social Support and Connectedness Scores at Time 1*

<i>Step</i>	<i>Variables Added</i>	β	R^2	ΔR^2	F	p
1	<i>Depression/Ideation</i>		0.69	0.69	54.44	< 0.001
	<i>ASIQ T1</i>	0.55***				
	<i>PHQ T1</i>	-0.09				
	<i>PHQ T2</i>	0.33**				
2	<i>Conflict/Support</i>		0.69	0.00	31.80	< 0.001
	<i>MSPSS</i>	0.05				
	<i>FC T1</i>	0.02				
3	<i>SCS T1</i>	0.10	0.70	0.01	27.68	< 0.001
4	<i>SCS T2</i>	0.12	0.70	0.01	23.96	< 0.001

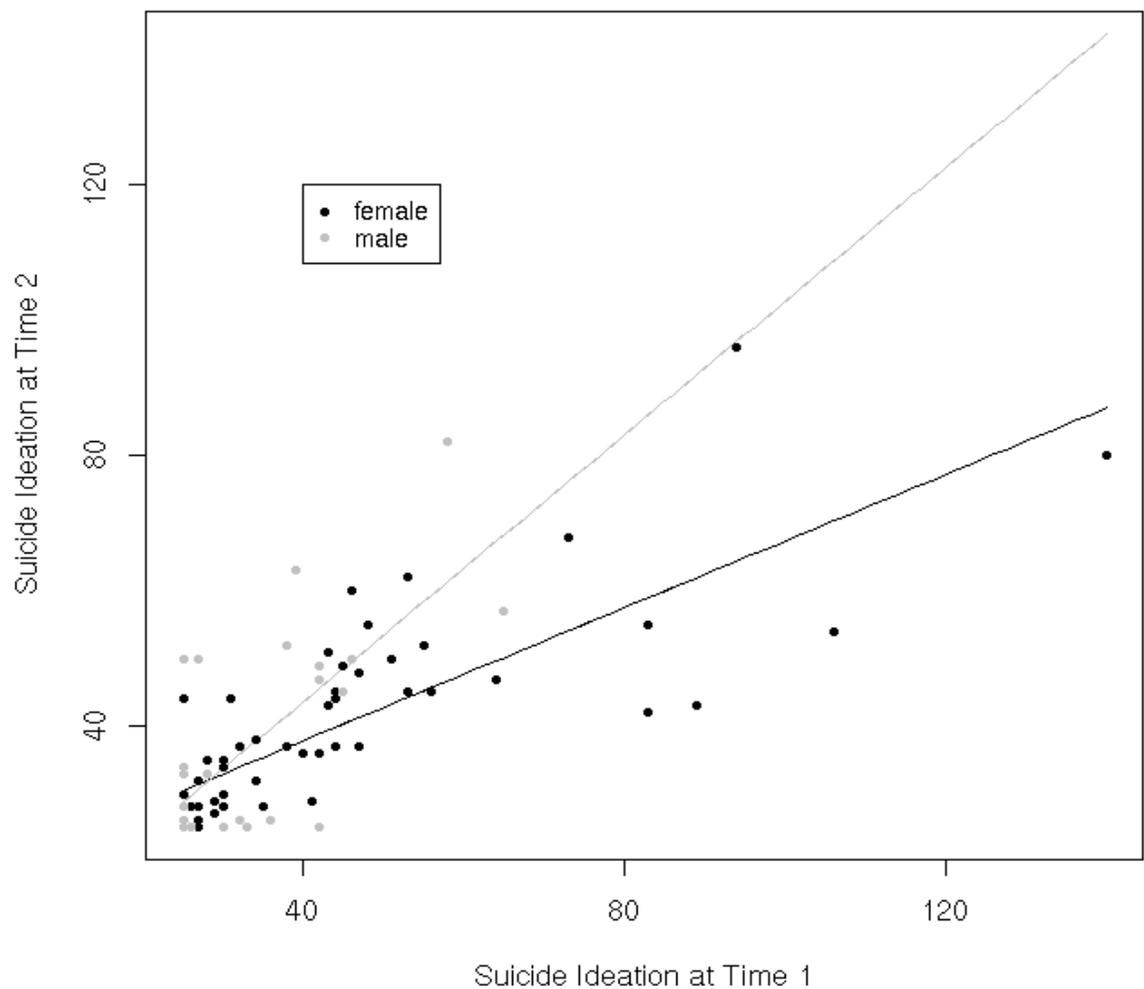
Note. ASIQ = Adult Suicidal Ideation Questionnaire; PHQ = Patient Health Questionnaire; SCS = Social Connectedness Scale; MSPSS = Multidimensional Scale of Perceived Social Support; FC = Family Conflict

* $p < 0.05$. ** $p < 0.01$. *** $p < 0.001$.

An interesting gender x Time 1 suicidal ideation interaction was found when Time 2 ASIQ scores were regressed on Time 1 ASIQ scores (step one), gender (step two), and their interaction term (step three). Time 1 ASIQ scores accounted for a significant 54% of the variance, as expected. Gender accounted for an additional significant 1% of the variance, in that being female was associated with a higher level of suicidal ideation. But the interaction term accounted for a significant additional 4% of the variance; the female gender interacted with Time 1 ASIQ scores. In other words,

though females have slightly higher suicidal ideation overall, they are somehow more "protected" from suicidal ideation over time than males are: Their ASIQ scores went down over time whereas males' stayed the same. The full model for predicting ASIQ scores at Time 2 accounted for 59% of the variance ($f^2 = 2.45$), $F(3, 75) = 38.34$, $p < .001$. Figure III.3. shows the interaction graphically. The implications of this finding are discussed below.

Figure III.3. Interaction between gender and Time 1 suicidal ideation



Relation of Acculturation to Social Connectedness and Suicidal Ideation

To examine whether acculturation levels affect the relation between social connectedness and suicidal ideation, participants were broken down into three groups according to their scores on the SL-ASIA: high acculturation (participants whose scores were in the top 33%), medium acculturation (scores in the middle 33%) and low acculturation (scores in the bottom 33%). Specifically, the "high-acculturated" group consisted of individuals who were in the high-average range of acculturation (i.e., averaging 3.8 out of 5 on each individual item), whereas the "low-acculturated" group consisted of individuals from the low-average range (i.e., averaging 2.5 out of 5 on each individual item). The "medium-acculturation" group, naturally, consisted of individuals who were in the average range (i.e., averaging 3 out of 5 on each individual item). A series of hierarchical regression analyses were done for each of the three groups with PHQ (Time 1 and Time 2) and ASIQ (Time 1) scores entered at step one, Time 1 SCS scores at step two, and Time 2 SCS scores at step three. An interesting pattern emerged, in that for the low and medium acculturation groups, only Time 1 suicidal ideation and current depression predicted Time 2 suicidal ideation (see Tables III.7 and III.8). But for the high acculturation group, Time 1 suicidal ideation and current depression ceased to be significant when social connectedness at Time 2 was entered into the equation. In the full model, the only significant predictor of suicidal ideation at Time 2 was social connectedness at Time 2, accounting for a small-medium 12% ($f^2 = .14$) of the variance by itself (see Table III.9). The full regression model for predicting suicidal ideation at Time 2 in high-acculturated individuals accounted for a large 65% of the variance in ASIQ scores ($f^2 = 1.86$), $F(5, 17) = 6.32, p < .01$. In other words, for highly acculturated

individuals, social connectedness served as a better predictor than conventional predictors such as depression and past suicidal ideation. The implications of this finding are discussed below.

Table III.7. *Hierarchical Regression Analysis Showing Amount of Variance in Suicidal Ideation Measure at Time 2 Accounted for by Depressive Symptoms, Family Conflict, Social Support and Connectedness for Low Acculturation*

<i>Step</i>	<i>Variables Added</i>	β	R^2	ΔR^2	<i>F</i>	<i>P</i>
1	<i>Depression/Ideation</i>		0.86	0.86	36.10	< 0.001
	<i>ASIQ T1</i>	0.67***				
	<i>PHQ T1</i>	-0.13				
	<i>PHQ T2</i>	0.33**				
2	<i>SCS T1</i>	0.29	0.90	0.03	34.97	< 0.001
3	<i>SCS T2</i>	0.00	0.90	0.00	26.23	< 0.001

Note. ASIQ = Adult Suicidal Ideation Questionnaire, PHQ = Patient Health Questionnaire; SCS = Social Connectedness Scale

* $p < 0.05$. ** $p < 0.01$. *** $p < 0.001$.

Table III.8. *Hierarchical Regression Analysis Showing Amount of Variance in Suicidal Ideation Measure at Time 2 Accounted for by Depressive Symptoms, Family Conflict, Social Support and Connectedness for Medium Acculturation*

<i>Step</i>	<i>Variables Added</i>	β	R^2	ΔR^2	F	P
1	<i>Depression/Ideation</i>		0.75	0.75	27.39	< 0.001
	<i>ASIQ T1</i>	0.58***				
	<i>PHQ T1</i>	-0.10				
	<i>PHQ T2</i>	0.40*				
2	<i>SCS T1</i>	0.02	0.75	0.00	19.85	< 0.001
3	<i>SCS T2</i>	0.02	0.75	0.00	15.30	< 0.001

Note. ASIQ = Adult Suicidal Ideation Questionnaire, PHQ = Patient Health Questionnaire; SCS = Social Connectedness Scale

* $p < 0.05$. ** $p < 0.01$. *** $p < 0.001$.

Table III.9. *Hierarchical Regression Analysis Showing Amount of Variance in Suicidal Ideation Measure at Time 2 Accounted for by Depressive Symptoms, Family Conflict, Social Support and Connectedness for High Acculturation*

<i>Step</i>	<i>Variables Added</i>	β	R^2	ΔR^2	F	p
1	<i>Depression/Ideation</i>		0.52	0.52	6.83	< 0.01
	<i>ASIQ T1</i>	0.38				
	<i>PHQ T1</i>	0.06				
	<i>PHQ T2</i>	-0.34				
2	<i>SCS T1</i>	0.06	0.53	0.01	5.02	< 0.01
3	<i>SCS T2</i>	0.69*	0.65	0.12	6.32	< 0.01

Note. ASIQ = Adult Suicidal Ideation Questionnaire, PHQ = Patient Health Questionnaire; SCS = Social Connectedness Scale

* $p < 0.05$. ** $p < 0.01$. *** $p < 0.001$.

Chapter IV

Discussion

Suicidal ideation among Asian American college students is an understudied phenomenon that deserves increased awareness, especially given the large numbers of Asian American students enrolled at universities nationwide as well as the high rates of suicide and suicidal ideation among Asian American young adults (Kisch et al., 2005; Leong et al., 2007). This study used a short-term longitudinal design to examine the transitions of the freshman year for Asian American college students, and how social and interpersonal factors associated with that transition then predict suicidal ideation one year down the line. The interpersonal factors were chosen for their known relevance to suicidal ideation: Family conflict has long been shown in the literature to positively predict suicidal ideation (Adams & Adams, 1996; Brent et al., 1990), in studies of primarily European Americans as well as studies looking specifically at Asian Americans (Lau et al., 2002; Lee et al., 2006). Similarly, social support is commonly cited as a protective factor that negatively predicts suicidal ideation across various populations (King & Merchant, 2008). And although no one has looked specifically at social connectedness yet as a predictor of suicidal ideation, closely linked constructs such as belongingness help form the foundation of one of the most well-established theories of suicide (Joiner, 2005).

In looking at Time 1 alone, the data showed a lifetime prevalence of suicidal ideation of about 71% and a 1-month prevalence of about 7%. The rates are comparable to those in previous studies (Drum et al., 2009; Meehan et al., 1992). Current levels of depressive symptoms were the best predictor of suicidal ideation, as expected. After depressive symptoms, social connectedness emerged as having the strongest link to suicidal ideation, accounting for more variance than either family conflict or social support alone. A number of interactions also emerged: social connectedness interacted with depressive symptoms in the expected manner to predict suicidal ideation, and family conflict interacted with acculturation in the expected manner to predict suicidal ideation.

Also as expected, suicidal ideation at Time 2 was best predicted by current levels of depression as well as past levels of suicidal ideation. Contrary to expectations, none of the interpersonal factors (i.e., family conflict and social support at Time 1, social connectedness at both Time 1 and Time 2) were significantly predictive. The picture changed, though, when the full sample was broken down into three groups: high, medium and low acculturation. Whereas the findings for the low- and mid-acculturation groups remained the same, suicidal ideation for the high acculturation group was now significantly predicted by social connectedness at Time 2, and the effects of suicidal ideation at Time 1 and depression at Time 2 disappeared. In other words, for the high acculturation group, social connectedness was a stronger predictor than either current depressive symptoms or past suicidal ideation, two of the most robust predictors of current suicidal ideation in extant literature. There was also an interaction between gender and Time 1 suicidal ideation in predicting Time 2 suicidal ideation, namely, that over time, women's suicidal ideation decreased whereas men's stayed the same.

In terms of participant attrition/changes from Time 1 to Time, no significant differences were found between the two time points on any of the measures, but Chinese Americans and Christians made up a larger percentage of the sample at Time 2 than they did at Time 1, whereas individuals who did not identify as subscribing to a particular religion made up a smaller percentage of the sample at Time 2 than at Time 1.

The findings are unsurprising for several reasons. In studies of Asian Americans as well as other ethnic groups, depression has tended to either have directly or indirectly predicted suicidal ideation and behaviors (Brent et al., 1993a; Brent et al., 1993b; Brent et al., 2009b; Cheng & Chan, 2007; Evans et al., 2004; Flisher, 1999; Yang & Clum, 1994). In fact, some of the current treatment models for suicidality achieve at least part of their effect by mitigating accompanying depressive symptoms (Brown et al., 2005; Salkovskis, Atha, & Storer, 1990; Vitiello et al., 2009). It appears, then, that depression plays a similar role for Asian American college students as it does for their non-Asian peers in its relation to suicidal ideation, and suicide risk assessment for Asian Americans should continue to focus on current levels of depression. Additionally, as Lau et al. (2002) found, low-acculturated individuals were more significantly affected by family conflict than medium- and high-acculturated individuals, possibly because low-acculturated individuals value familial harmony more than their peers do. Finally, it was unsurprising that high levels of depressive symptomatology and high levels of social disconnectedness would have a multiplicative effect in increasing levels of suicidal ideation. It makes sense that if one feels depressed and on top of that feels "unmoored" in the larger community, then increased levels of ideation would be the result.

The findings are surprising for several reasons. First, social connectedness emerged as having a stronger link to suicidal ideation at Time 1 than either family conflict or social support did, even though family conflict and social support are commonly thought of as among the most important or relevant predictors of overall mental health in Asian American college students (e.g., Constantine, Chen, & Ceesay, 1997; Zhang & Ta, 2009). One possible explanation, as suggested by Cohen (2004), may be that the three variables operate on well-being through disparate and independent mechanisms. Cohen argued that researchers often make the mistake of assuming that social variables influence health in the same ways. For example, he identified social support as a stress buffer, which is to say that it operates *indirectly* on well-being by reducing the effects of stressful experiences. Alternatively, he identified social integration (which he defined as “participation in a broad range of social relationships”) as having a *main effect* on well-being, by directly increasing positive psychological states. Finally, Cohen identified negative interactions as a source of stress. In the present study, it could be argued that social connectedness emerged as a stronger predictor because it had a main effect on the participants’ level of suicidal ideation, whereas family conflict is “merely” a stressor that has a greater or lesser indirect effect on suicidal ideation, depending on whether or not enough social support is in place to serve as a buffer.

The second surprise is that none of the interpersonal factors measured at Time 1 were linked to suicidal ideation at Time 2. Although social connectedness had strong predictive value for present suicidal ideation, it had no link to future suicidal ideation. Several explanations may account for the finding, but one likely possibility is that levels

of social connectedness are subject to a relatively large degree of fluctuation over time. In other words, a student who feels socially disconnected today may not feel the same way in a matter of months as a result of changes to his/her social network, but conversely, a student who feels connected today may be just as likely to become isolated further down the line. That would not be inconsistent with the data from the current study, which found that in the overall sample, social connectedness scores did not change from Time 1 to Time 2. In other words, individual scores might have changed over the course of the first year, but overall, the mean of the entire sample stayed consistent. That would also be consistent with existing research suggesting that a great deal of identity exploration and development occurs during the college years, including changes to one's ethnic identity (Saylor & Aries, 1999; Syed & Azmitia, 2009), personality (Lodi-Smith, Geise, Roberts, & Robins, 2009), and sexuality (Gilmartin, 2006), just to name a few. It seems likely, then, that changes to the student's social network would accompany the identity changes, as the student tests out different groups of friends with varying degrees of success.

The third surprise involved the demographics of the participants who had responded at Time 2 and had provided usable data. Though there were no significant differences between Time 1 and Time 2 participants on the various measures, the demographic changes were unexpected and, to some extent, difficult to explain. The increased representation of Chinese Americans at Time 2 might have been due to the fact that the experimenter's Time 2 recruitment emails contained the experimenter's surname, which is a common Chinese surname. That might have influenced the Chinese American participants to participate in larger numbers because of a sense of ethnic "duty." The

increased representation of Christians at Time 2 was also inexplicable and might or might not have been due to certain religious values about meeting perceived social obligations. Finally, the decreased representation of individuals with unstated religious affiliations might have been due to two things. Because the item concerning religion was open-ended (as opposed to multiple-choice), it is possible that many people simply declined to fill it out because of the extra work involved. Those individuals might have also been less committed to completing the survey and thus were less likely to participate at Time 2. The second possibility is that, as Leong et al. (2007) have suggested, many Asian Americans hold religious beliefs that reflect tenets from multiple faiths, and thus they may find it difficult to select one specific religion to which they subscribe when they are asked to do so. If the individuals in the "unstated" group are that way, then they might also hold conflicting attitudes regarding suicide, from the condemning attitude of Christianity (e.g., Greening & Stoppelbein, 2002) to the laxer attitude of some Asian religions (Chan, 1995). Future studies will have to examine the phenomenon in more depth to determine whether the attrition rate represents a simple methodological flaw or something far more important.

The fourth surprise is that there was an interaction between gender and Time 1 suicidal ideation in predicting Time 2 ideation. The finding calls to question whether there are differences in the *course* of suicidal ideation in Asian American men and women, as current data suggest that women are more likely to experience decreases in suicidal ideation over time. It is unclear at this time the meaning of this finding: Perhaps women are more likely to seek counseling or social support than men are when they begin experiencing suicidal ideation, which of course would be consistent with extant

research regarding gender norms in help-seeking behaviors (e.g., Levant, Wimer, Williams, Smalley, & Noronha, 2009).

The final surprise is that when the sample was broken down according to acculturation levels, different patterns emerged, and not in the predicted manner. One reason that social connectedness is so closely linked to suicidal ideation in high-acculturated individuals may be that such individuals do not fit with their low-acculturated counterparts; their disparate interests and values prevent them from feeling a sense of belonging with many of the other Asian American students. For those high-acculturated individuals who have many non-Asian friends and who experience a sense of community with them, the lack-of-fit with other Asian Americans may not be a problem. But for those who do not, the feelings of alienation and confusion may be overwhelming because of unmet expectations. They may wonder why they are so disconnected, even though they *feel* as “American” as their non-Asian peers. In partial support of this hypothesis, Ying, Lee, Tsai, Lee, and Tsang (2001) found that Asian American college students who had social networks with a lot of racial/ethnic similarity tended to feel more socially integrated, though they defined social integration as the extent to which each member in the social network knew every other member of the same network, a somewhat different construct from social connectedness. Individuals with high acculturation may also encounter resistance when they try to seek “Western” styles of social support from their family members because of the stigma against direct social-support seeking behaviors in traditional Asian culture, leading to an increased sense of disconnectedness. It is possible that high-acculturated students are “caught between

worlds,” and more studies are necessary to help us understand their social experiences and unique difficulties.

The clinical implications of the findings are twofold. First, for many Asian American college freshmen, depressive symptomatology is still the most robust predictor of suicidal ideation, and for that reason, counselors working with the population should continue to assess for and target depressive symptoms in treatment. But when working with high-aculturated individuals, the emphasis should be on assessing for and helping to improve the person’s sense of social connectedness. The latter may be done by either addressing the person’s cognitions about their belongingness or by developing outreach or support groups that proactively try to connect the person to other individuals. For example, socially disconnected individuals may be especially likely to hold maladaptive cognitions such as “I don’t fit in anywhere,” or “I’m alone in the world.” Cognitive therapy with such individuals would then focus on generating evidence and counter-evidence to determine whether those thoughts are realistic. Counselors may also intervene socially to increase connectedness by involving the individual’s family or friends (unless that is contraindicated by other factors such as family conflict). A good model for a prevention or treatment program may be Cardemil, Kim, Pinedo, and Miller’s (2005) Family Coping Skills Program, a depression prevention program for low-income Latina mothers that incorporates both group sessions for teaching cognitive-behavioral skills and for normalization/social support, and family sessions for improving family relations. Though the intervention is targeted toward Latina mothers, its framework might extend to Asian American college students because Latino culture may share important similarities with Asian culture such as collectivism and a strong family

orientation (Varela, Sanchez-Sosa, Biggs, & Luis, 2009). Of course, the potential physical distance of the student from his/her family may affect the feasibility of family sessions, but friends or other members of the college community may serve as substitutes to help the individual feel better connected to the college context as a whole.

Limitations of the Study

First, the small sample of participants who responded and provided usable data at Time 2 likely limited the predictive ability of the current study. Most of the nonsignificant effects of condition were in the predicted direction, so a greater number of participants might have strengthened the findings. More importantly, perhaps, the parameters of the current study raised important considerations and questions for studies to come. Given that most research on Asian American suicidality has been cross-sectional, the present study sought to expand upon the literature by using a short-term longitudinal design. Yet a longitudinal design brought about many unexpected complexities and challenges, including the high attrition rate and participants whose Time 1 and Time 2 data did not match up. The use of the Internet data collection method was both a boon and a hindrance: On one hand, it allowed broader recruitment and sampling, but on the other, it prevented face-to-face meetings (which might have established more of a personal connection between the experimenter and the participants) or the option of matching up Time 1 and Time 2 data in person, by hand. Future longitudinal studies may benefit from keeping data collection to the local level; alternatively, frequent email follow-ups may be necessary to help participants feel like they have a more substantial relationship with the experimenter.

Second, this study did not control for the level of racial/ethnic diversity on the various college campuses represented, even though that may have important effects on the level of social connectedness, social support and so forth that might be experienced by an Asian American student on that campus. For example, a cursory review of the Registrar's websites of three of the universities represented in this study showed that the percentage of Asian students ranged from 40% (California Institute of Technology, Office of the Registrar, 2009) to 13% (University of Michigan, Office of the Registrar, 2009), to 2.5% (University of Vermont, Office of Institutional Studies, 2009); the sense of connectedness may also vary depending on how large an institution is, as 10% Asian students in a school of 40,000 students may feel very different from 10% in a school of 4,000. Third, the study did not control for the physical distance of the participants from their respective hometowns. A student living a short distance from his/her family may not experience the same degree of social isolation or lack of social support as a student whose family is across the country; conversely, a student living far from his/her family may not experience as much family conflict as a student who visits home on a frequent basis. And even if physical distance had been controlled for, the extent of phone/email contact each student has with his/her family would still have contributed to the student's sense of isolation. Fourth, this study was not able to take into consideration the experiences of biracial/multiracial individuals: Suzuki-Crumly and Hyers (2004) have noted the dearth of research on biracial or multiracial individuals in ethnic minority research; they also found that biracial individuals were more likely to identify as biracial first, followed by the minority identity. In the current study, only five individuals identified themselves as biracial, precluding the opportunity for statistical analysis and

suggesting a couple of possibilities. One, not many biracial Asian Americans participated in the study to begin with because they did not consider themselves "Asian American." Two, a number of biracial Asian Americans considered themselves "Asian" and as a result identified as such in the study. Future studies may benefit from more actively recruiting biracial Asian Americans so as to examine any potential differences in the suicidal ideation/connectedness of biracial vs. monoracial Asian Americans, especially given evidence that minority-identified biracial individuals tend to have better psychological well-being than biracial- or non-identified individuals (Suzuki-Crumly & Hyers, 2004).

Another limitation is that this study used a measure of social support that was developed by/for a non-Asian population, and given Kim et al.'s (2008) argument, it is unclear whether this measure was able to fully capture the range and meaning of social support in the current sample. There is much we don't understand yet about how, when, and with whom social support "works" in the Asian American population. Kim et al.'s argument raises the following questions: Is direct-social-support seeking *ever* acceptable for Asian Americans? Is it only acceptable for individuals with a certain level of acculturation? Are there contexts where social support is acceptable (e.g., at a student-group meeting) and where it is taboo (e.g., at home)? And are there topics that are acceptable to seek support for because of their cultural value (e.g., difficult exams)?

Similarly, given that there is little research on the predictive validity of extant suicidal ideation measures in Asian Americans, it is difficult to say whether the measure used in this study was able to fully capture the seriousness of suicidal ideation in the sample. On one hand, it has been suggested that ethnic-minority individuals may actually

underreport suicidal ideation because of cultural stigmas against expressing emotional distress (e.g., Choi, Rogers, & Werth, 2009; Morrison & Downey, 2000), though anonymous, Internet-based protocols (like the one used here) tend to increase self-disclosure (Chang, Yeh, & Krumboltz, 2001). It is also frequently argued that for individuals of Asian descent, complaints about physiological symptoms such as fatigue and dizziness may be a more culturally sanctioned way of expressing distress or seeking help (e.g., Chung & Singer, 1995; Weiss, Tram, Weisz, Rescorla, & Achenbach, 2009), and thus it is possible that the suicidal ideation measure used in this study did not fully capture the suicidality of those individuals who experience distress in more physiological terms. On the other hand, it is also possible that the *meaning* of expressions of suicidality for Asian Americans may vary from the meaning for European Americans, and that when current measures are used in the former group, they are actually measuring something slightly different. For example, suicidal expressions may represent primarily a wish to die in European Americans, whereas they may represent a number of additional things in Asian Americans like a different survey response style (Asians are more likely to use the midpoint on scales as opposed to the extremes, whereas European Americans may only pick the midpoint scores when they are actually experiencing suicidal thoughts; Chen, Lee, & Stevenson, 1995) or even cultural colloquialisms. To make matters more complicated, there is little research overall about what distinguishes "simple ideators" from those who will actually attempt or complete suicide, thereby limiting the value of current suicidal ideation measures. A recent report showed that only about 13% of adults who ideate end up making an attempt (U.S. Department of Health and Human Services, 2008); the percentage is conceivably smaller among Asian Americans. Future studies

would benefit from using a different variable (e.g., past suicidal behaviors or suicidal intent) that is more directly predictive of suicide.

Additional limitations relate to the way sampling was done on this particular study. Because the study was wholly voluntary (as opposed to linked to the requirements of a class, for instance), it is conceivable that it attracted individuals especially interested in suicidal ideation for varying reasons. But a comparison of the suicidal ideation scores in the current data set to those of previously published studies that used the ASIQ in a college student sample revealed a great deal of similarity, both in terms of the mean/standard deviation as well as the range (Carris, Sheeber, & Howe, 1998; Reynolds, 1991b). Additionally, because Asian American student group listservs were used to recruit participants from other universities across the country, it is possible that there was a sampling bias for Asian American students who had access to peer social support. Here, again, the data seemed to suggest otherwise, in that the MSPSS mean of the current sample was comparable to the mean of a previous college student sample (Zimet et al., 1988). Finally, the large disparity in the number of men vs. women who participated in the study might have influenced the findings, especially given that the U.S. Census Bureau (2008) showed that for full-time Asian American first-year college students, the gender ratio is about 52% male and 48% female. For unclear reasons, the study attracted substantially more female participants than male participants, possibly because the experimenter's gender prompted females to respond out of a sense of identification. However, given that the men and women were not statistically different on any of the measures (with the exception of depression), that seems unlikely. Nevertheless, future

studies may wish to utilize more inclusive sampling procedures that would improve the generalizability of current findings.

Concluding Thoughts

Among mental health professionals working at college counseling centers, the prototypical image of the suicidal Asian American client seems to resemble this: A student, crumbling under familial and cultural pressures to excel academically, is driven to thoughts of self-harm as the result of a poor grade on an exam or in a class. Certainly, the costs of familial pressures are many, but where research has lagged is in providing insight into the interpersonal experiences of Asian American undergraduates, especially as they make the transition from high school to college. Where do they fit? How do they fit? And perhaps most importantly, what happens when they don't fit at all?

One of the most well-established theories of suicide suggests that interpersonal factors such as a sense of belonging greatly influence suicidality (Joiner, 2005). The present study sought to examine just that in Asian American college freshmen, and found a strong link between suicidal ideation and factors such as connectedness, family conflict and social support. More interestingly, it found that for highly acculturated Asian Americans, social connectedness was a better predictor of suicidal ideation than either current depression or past suicidal ideation, emphasizing yet again the importance of assessing for acculturation levels when working with Asian American clients, as different levels may respond to treatments in differential ways.

Future studies may seek to track Asian American freshmen for a longer period of time to determine what happens to those students who experience disconnectedness and suicidal ideation as college goes on. For example, is disconnectedness a fairly stable

“condition” that waxes and wanes throughout the years but for the most part remains elevated, or is it perhaps only so in individuals with a certain level of acculturation? Also, given that the "transition" to college actually starts sooner than the first two months of college, it might be interesting to conduct a longitudinal study that begins toward the end of high school. Researchers may also develop and examine the treatment efficacy of college counseling programs that target social disconnectedness and help to build a sense of community among students. In addition, it might be interesting to see how perceived burdensomeness relates to suicidal ideation in this population, in accordance with Joiner’s (2005) larger theory of suicide. Finally, it would be interesting to extend this study to other ethnic groups in the U.S., particularly those with a large immigrant population, to see whether current findings apply to those groups as well.

Despite the numerous stereotypes of Asians as perfectionist, impassive “robots,” it may be that ultimately, suicidal ideation risk factors in this group are not too different from those in other groups. In other words, although it may be true that Asian American college students struggle with meeting high standards of achievement and the expectations of the “model minority” stereotype, what they also struggle with is the challenge of finding a place for themselves in college, of establishing a social network and fitting in. After all, Asians are not all samurais, and as data from this study showed, there are many reasons why Asian American students may choose to die by suicide besides honor.

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