Acculturation Stress and Alcohol Use Among International College Students in a U.S. Community College Setting

Chieko Koyama

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Co-Chairs:
Gabriella Belli, Ph.D. Nancy Bodenhorn, Ph.D.
Committee Members:
Gerard Lawson, Ph.D.
Octavia Madison-Colmore, Ed.D.
Kok-Mun Ng, Ph.D.

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(ABSTRACT)

Alcohol use among international students in a U.S. community college setting was explored in regard to the interrelationships with acculturation stress and drinking motivations. Misuse of alcohol has been acknowledged as a serious problem on American college campuses. A positive relationship between stress and alcohol use has been documented among those who lack internal and external resources and support systems. International students have been recognized as higher-risk than other college students due to acculturation stress. However, very few studies have investigated the drinking behaviors of this population. To fill this research gap, a survey was conducted with non-immigrant international students (F-1 students) (N = 126) and immigrants international students (non-F-1 students) (N = 136) enrolled in English as a Second Language (ESL) programs in a U.S. community college. The results, which were derived from responses to three published instruments, Index of Life Stress (ILS), Core Alcohol and Drug Survey (CADS) Community College Long Form, and Revised Drinking Motivation Questionnaire (DMQ-R), as well as the researcher-made demographic information sheet, indicated that these groups were not engaged in abusive drinking behavior. This finding may reflect the support systems available to these students in an ESL setting and their family/friend networks. However, moderately strong zero-order correlations between acculturation stress and drinking motives to control negative affects were revealed. Further discussions and implication are provided.

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CHAPTER ONE

INTRODUCTION

Alcohol misuse among students is an epidemic found on many American college campuses (Goldman, 2002). Excessive alcohol use among college students was identified as a major public health concern by the U.S. Surgeon General and the U.S. Department of Health and Human Services (HHS) (HHS, 2000). Since 1953 when Straus and Bacon first reported college drinking behaviors and their negative consequences, the prevalence of alcohol use on campuses has escalated (Dowdall & Wechsler, 2002). For more than half a century, alcohol misuse and the risky behaviors often associated with such dissipation have been identified as a serious threat to the physical and psychological well-being that college life requires (Presley, Meilman, & Leichliter, 2002).

Inconsistent messages regarding the advantages and disadvantages of drinking patterns create confusion toward health-related matters (Hitti, 2004). Medical studies report that moderate red wine consumption may lower certain health risks, such as cancer and heart disease (Hitti, 2004, Warner, 2004). However, the consensus among medical experts suggests that heavy drinking, regardless of the type of drink (e.g., beer, wine, liquor), causes severe damage to the body, including liver disease, heart disease, and various forms of cancers (Dowiko, 1999; Gold, 1988; Liska, 1994; Stevens & Smith, 2001). In addition to the long term health effects of excessive alcohol use, frequent alcohol use among college students can lead to a variety of negative consequences such as "fatal and nonfatal injuries; alcohol poisoning; blackouts; academic failure; violence, including rape and assault; unplanned pregnancy; sexually

transmitted diseases, including HIV/AIDS; property damage; and vocational and criminal consequences that could jeopardize future job prospects" (Goldman, 2002, p. 5).

Cross-sectional national surveys on alcohol and other drug studies have noted the high prevalence of alcohol use on college campuses (Boyd & Faden, 2002; National Institute on Alcohol Abuse and Alcoholism [NIAAA], 2002; O'Malley & Johnston, 2002; Presley et al., 2002; Wechsler, Lee, Kuo, Seibring, Nelson, & Lee, 2002). The data sources used in these studies showed similar patterns; approximately 80% of college students had consumed alcohol within 12 months prior to the surveys; 70% had used alcohol in the past 30 days; 40% had engaged in heavy episodic drinking in the past 2 weeks. Further, similarities were also identified with regard to racial/ethnic and gender outcomes in these national studies; White American students consume more alcohol than Latino, Asian, and African American students, and male students drink alcohol more frequently than female students. Moreover, positive relationships were found between heavy drinking and membership in fraternities and sororities, athletes, and first-year students, as well as students in the Northeast and North central regions. These national survey findings paralleled those found in research with much smaller sample sizes (Benton, Schmidt, Newton, Shin, Benton, & Newton, 2004; Kahler, Read, Wood, & Palfai, 2003; Madison-Colmore, Ford, Cooke, & Ellis, 2003).

In contrast, some reports indicate that students in 2-year colleges, religious colleges, commuter colleges, and historically Black colleges and universities drink alcohol less than their counterparts in traditional 4-year institutions (Madison-Colmore, Ford, Cooke, & Ellis, 2003; NIAAA, 2002; O'Malley & Johnston, 2002; Presley et al., 2002). However, several authors noted a steady increase in alcohol consumption among community college students since 1989 (Presley, Cheng, & Pimenel, 2004; Presley, Meilman, Cashin, 1996; Presley et al., 2002; Presley,

Meilman, & Lyerla, 1993). A study by Coll (1999) demonstrated similar drinking patterns in 2-year colleges to those in 4-year colleges.

The college years represent the "prime drinking years" (Schulenberg & Maggs, 2002, p. 54). College students between the ages of 18-22 drink more than any other age group including their age non-college peers (O'Malley & Johnson, 2002). According to Schulenberg and Maggs, this tendency is explained by changes in living environments and human development. For instance, increased freedom due to living away from parental controls may tempt college students into risky behaviors including substance use. High academic demands in college may lead students to use alcohol and other drugs as a way to avoid these pressures. Sociocultural pressures to transform from childhood into adulthood may be threatening due to the increased social responsibilities that adults undertake. In addition, alcohol use can be traced back to maladapted behaviors learned prior to attending college (Doweiko, 1999). Some school children begin to experiment with alcohol as a recreational substance out of curiosity, whereas others use it as a form of rebellion or in response to peer pressure (Stacy, Newcomb, & Bentler, 1993). These students may continue drinking when entering college (Baer, 2002).

In an attempt to find a causal factor for excessive alcohol consumption, stress has received intensive investigation as a coping mediator in tension-reduction frameworks (Ham & Hope, 2003; Hussong, 2003). To date, there is general consensus that daily stress alone does not lead to heavy drinking (Rutledge & Sher, 2001). Serious stress, however, is a strong predictor for heavy drinking that leads to alcohol-related problems (Cooper, Russell, Skinner, Frone, & Mudar, 1992). According to Lazarus and Folkman (1984), stress occurs when the individual perceives environmental demands that exceed his or her resources. Stress is the result of a subjective appraisal that individuals place upon situations that challenge, threaten, or harm their

well-being. These researchers explain that coping is the process through which the individual interacts with environmental demands and the emotions generated from this interaction. A model by Lazarus and Folkman defines two types of coping styles: problem-focused coping and emotion-focused coping. Focusing on action, the former seeks a problem-solving strategy to change the person-environment relationship, whereas the latter tries to change the negative emotions engendered by the stressful situation. In this framework, drinking is viewed as an avoidant form of emotion-focused coping strategy. In addition, Cooper et al. (1992) argued that people are more likely to use alcohol if they believe a function of alcohol is to reduce tension or relieve unpleasant emotions.

Taking these arguments into account, Kassel, Jackson, and Unrod (2000) suggested that college students who are particularly vulnerable to alcohol misuse are those who appraise the environmental demands as threatening due to a lack of internal and external resources as well as a lack of problem-focused coping skills. Further, Cooper (1994) argued that vulnerability increases if people believe that alcohol provides positive benefits for emotional change.

Non-immigrant international college students (F-1 students) have been recognized as a high-risk population, susceptible to stress resulting from cross-cultural adjustments (Misra & Castillo, 2004; Yoon & Portman, 2004). However, examining ways in which those students reduce such stressors, such as through substance use, has been largely overlooked in the research. F-1 students come to the United States for the purpose of enrolling in educational institutions. In comparison to immigrant international college students who have permanent U.S. residency, or ethnic minority college students (e.g., Asian-American students, Latino-American students, etc.), who are either immigrants or children of immigrants born or brought to the Unites States and who were raised by their families in the United States, F-1 students arrived in

America alone, leaving their immediate support systems back home. While immigrant international college students have learned to define themselves based upon their bicultural statuses, F-1 students, who are often from the dominant ethnic group in their own countries, have already internalized their own ethnic cultures when they come to the United States. As stated by Sodowsky and Plake (1992), these environmental conditions distinguish one group from the other, even though the members of both groups may share the same ethnic origins.

Upon arriving in the United States, F-1 students experience "culture shock," the result of an encounter with a different cultural norm (Furnham & Bochner, 1986). As stated by Pedersen (1991), not all F-1 students are able to make a smooth cultural transition to a new college environment. Living away from family and friends, these students feel lonely, as well as frustrated by their insufficient English language skills. Limited access to accustomed social and academic practice makes them feel helpless. Further, F-1 students, particularly those from non-European countries, often perceive prejudice and discrimination due to dissimilarities from the dominant American culture (Omar & Rollock, 2004; Pedersen, 1991; Sandhu & Asrabadi, 1994; Yeh & Inose, 2003). As a result, the cross-cultural college experience can be threatening and lead to the use of emotion-focused coping strategies (Cross, 1995), which may include alcohol use for reducing or changing negative emotions. These factors lead to the following research query: Is alcohol a coping mechanism that F-1 students utilize to manage acculturation stress?

Statement of the Problem

Despite a wealth of literature on the drinking behavior of college students, little is known about alcohol use among F-1 students. The lack of research surrounding this phenomenon is problematic, and does not facilitate a smooth cultural adjustment process. During the 2002/03

academic year, nearly 590,000 international students attended American higher education. However, to this researcher's knowledge, no published study has examined the relationship between alcohol use and acculturation stress among this college subgroup. Existing research on college drinking primarily revolves around undergraduates in 4-year institutions, identifying whites, males, fraternity and sorority members, and athletes as positive predictors for heavy drinkers (NIAAA, 2002). Studies that do address ethnic differences in college populations rarely explain whether F-1 students are included (Yoon & Portman, 2004). When incorporated into studies, they are either grouped together with American ethnic groups or excluded from further investigations due to a small sample size (Yoon & Portman, 2004). As a result, the literature is sparse on whether or not F- students consume alcohol, the motivations that underlie potential drinking habits, as well as alcohol-related problems, particularly among F-1 students enrolled in community colleges.

Need for the Study

The investigation revolves around students attending community college, who thus far have been excluded from the research. The increasing number of F-1 students has affected the demographics of community colleges (Institute of International Education [IIE], 2003; National Center for Education Statistics [NCES], 2004). It is imperative that the research community gains insight into the prevalence of alcohol misuse among these students, which could encourage the development of appropriate prevention and treatment programs. Although F-1 students attending community colleges are neither American citizens nor permanent residents, they compose an important segment of U.S. campus populations. Therefore, studying the drinking behaviors of this group provides a comprehensive examination of American community college

students. To continue unearthing relationship dynamics between alcohol use and acculturation stress, further studies in this area are warranted.

Purpose of the Study

The purpose of this study was to:

1. Examine whether F-1 students attending community college use alcohol.
2. Explore whether there are interrelationships among alcohol use, acculturation stress, drinking motivations, and alcohol-related negative consequences.
3. Assess whether or not the drinking behavior of the F-1 students is high-risk.

To investigate these issues, a survey was conducted. Differences in gender and cultural orientations as represented by geographical regions were also examined.

Research Questions

The following were the initial research questions:

1. How much acculturation stress do F-1 students attending community college experience?
2. How much, how often, where, and with whom do F-1 students use alcohol?
3. What alcohol-related negative consequences do F-1 students experience?
4. What motivational factors affected drinking among F-1 students attending community college?
5. To what extent are there interrelationships among alcohol use, acculturation stress, drinking motivations, and alcohol-related negative consequences?

6. To what extent are there differences in gender, age, and cultural orientation represented by geographical regions regarding alcohol use, acculturation stress, drinking motivations, and alcohol-related negative consequences?

Limitations

1. A random sampling method was not used; therefore, results cannot be generalized to the population at large.
2. Survey instruments are written in English. This may have limited the comprehension levels of some participants and, therefore, limit participation.
3. Due to lack of literature on the norms of alcohol use in a variety of ethnic groups, interpretation of results may be limited.

Delimitations

1. This study is limited to international students enrolled in the English as a second language (ESL) program at a community college.
2. The focuses of this study is on alcohol misuse. Drugs other than alcohol are excluded.
3. An additional focus is on social, environmental, and cultural factors that may influence alcohol misuse. Biological factors are excluded.

Definition of Terms

- *Acculturation*. Adaptation of immigrants to their new cultural context (Eriksen, 1993). In this study, acculturation is framed as a phenomenon occurring among individual F-1 students.

- *Acculturation stress*. Stressors related to the adjustment to a new lifestyle, including language, customs, social interaction styles, social rules, and institutional laws, resulting from an encounter with new cultural paradigms (Berry, 2003).
- *Alcohol-related problems*. A variety of negative life events that are the direct result of alcohol consumption. These include infractions within the community, law, education, jobs, and health. (NIAAA, 2002).
- *Binge drinking*. Consuming five or more drinks at one sitting for men and four or more drinks for women (NIAAA, 2002).
- *Cross-cultural adjustment stress*. A synonym for acculturation stress.
- *Culture*. Socially learned ways of living found in human societies that embrace all aspects of social life, including both thought and behavior (Harris, 1999).
- *Drinking motives*. Reasons or purpose for drinking (Cooper, 1994).
- *Drinking problems*. Interchangeably used with alcohol-related problems and with negative drinking consequences.
- *F-1students.* Non-immigrant international college students who enter the United States with a student visa to enroll in higher education.
- *Heavy drinking*. A synonym for binge drinking.
- *Immigrant international college students*. College students who have visa types other than those designated for students (F or M visas) and exchange students (J visa). The visa types for immigrant international college students include the American citizens, permanent residents, and others such as asylum, and business (U.S. Department of State, 2005). In this study, these students are also referred to as non-F-1 students.

- *International college students*. This term refers to both non-immigrant international college students (F-1 students) and immigrant international college students (non-F-1 students).
- *Negative consequences due to drinking*. Interchangeably used with alcohol-related problems and with drinking problems.
- *Non-immigrant international college students.* Students who enter the United States with a student visa (F-1) to enroll in higher education. F visas are issued for students enrolled in academic institutes while M visas are for students enrolled in vocational institutes (U.S. Department of State, 2005). In this study, those who have a J visa, which is issued to exchange students sponsored by governmental organizations either in their home countries or the United States (e.g., Fulbright), include non-immigrant international college students because their entries to the United States are to attend educational institutions.
- *Stress*. Subjective appraisals that individuals apply to situations that are challenging, threatening, or harmful toward maintaining their well-being. Stress occurs when individuals perceive environmental demands that exceed their resources (Lazarus & Folkman, 1984).

Summary

Excessive alcohol consumption can create negative consequences due to drinking that threaten the physical and psychological well-being of college students. Numerous studies have documented that heavy drinking is particularly prevalent in 4-year institutions, especially among undergraduates, whites, males, fraternity members, and athletes. In contrast to American college students, the drinking behaviors of international students, particularly F-1 students enrolled in 2-year colleges, have received limited research attention. Due to the stressors found within their new cultural environments, F-1 students may be susceptible to high risk behaviors. Limited

external and internal resources may increase their reliance on alcohol to cope with negative obstacles. More research is needed to understand the multifaceted dynamics related to alcohol consumption.

Although the focus of the proposal research was entirely on F-1 students, the data collection effort resulted in an almost even number of F-1 and non-F-1 international students. Therefore, the original study was conducted as planned, with the addition of parallel analyses of non-F-1 students.

CHAPTER TWO

THEORETICAL FRAMEWORK

A conceptual model that describes motivational forces to drink was introduced in this chapter. The model is cross-designed with two dimensions to examine the rationale behind alcohol consumption. Two dimensions consist of valences (positive affects x negative affects) and sources (internal rewards x external rewards) forming four factors that initiate drinking: Enhancement motives, Coping motives, Social motives, and Conformity motives. Reviews of empirical studies that tested this model among college students are provided.

Drinking Motivation Model

Issues surrounding alcohol consumption (e.g., causal factors) among college students have garnered more attention in the research field (Ham & Hope, 2003). After reviewing several national surveys on college drinking behavior, O'Malley and Johnston (2002) stated that the pursuit of thrill seeking behavior, and managing negative emotions such as anxiety and depression were two significant sources of alcohol consumption. Cooper (1994) stated that motivational factors (e.g., decreasing depression, increasing fun, etc.) have more affect on initiating alcohol use than the beliefs on anticipated outcomes resulting from alcohol use.

Cooper's Four-Factor Drinking Motivation Model

Using a sample of international students attending ESL programs at a community college, the current study was framed by Cooper's (1994) four-factor drinking motivation model. This model was an extrapolation of Cox and Klinger's (1988) "motivational model of alcohol use". Cox and Klinger explained that the decisions that led toward alcohol consumption were inspired

by the desire to increase their positive affective state (e.g., pleasure, fun, excitement) or to decrease their negative affective state (e.g., stress, anxiety, sadness, anger), and that this alteration was facilitated through alcohol consumption. Additional factors that influence alcohol-related decisions are personality, sociocultural environment, past drinking experience and consequential tolerance levels, as well as contextual life circumstances. According to Cox and Klinger, the decision for consuming alcohol is made whether the change that the person expects to achieve by drinking will outweigh the condition accompanies sobriety.

Based on Cox and Klinger's concept, Cooper (1994) developed a four-factor drinking model, which contains a scale called the Revised Drinking Motivation Questionnaire (DMQ-R). This scale consists of four drinking motives cross-designed with two dimensions. Cooper explained that there are "two underlying dimensions reflecting the valence (positive or negative) and the source (internal or external) of the outcomes an individual hopes to achieve by drinking" (p. 118). In this model, the internal source is a self-reward such as emotional change, whereas the external source is a reward found extrinsically such as through social acceptance, or approval from others. While the positive reinforcement seeks to increase an ongoing, pleasant emotional state, the negative reinforcement seeks to eliminate unpleasant, affective experiences. These four drinking motives are referred to as Social motives (external reward x positive reinforcement), Enhancement motives (internal reward x positive reinforcement), Coping motives (internal reward x negative reinforcement), and Conformity motives (external reward x negative reinforcement).

Each set of motives in the DMQ-R consists of five statements with a scale from 1 (*almost never* or *never*) to 5 (*almost always* or *always*) (see Appendix A). Potential scores range from 5 to 20. Examples of the statements are: (a) enhancement—"Because you like the feeling" and "

Because it's exciting," (b) coping—"To forget your worries" and "Because it helps you when you feel depressed or nervous," (c) social—" Because it helps you enjoy a party" and "To be sociable," and (d) conformity—" Because your friends pressure you to drink" and "So that others won't kid you about *not* drinking" (Cooper, 1994, p. 122).

Given previous research on alcohol-related motivation models with adolescents and adults (Cooper, 1994; Cooper, Russell, Skinner, Frone et al., 1992), Cooper hypothesized that both Enhancement motives and Coping motives were direct positive predictors for heavy alcohol consumption, but only Coping motives would directly predict drinking problems. Enhancement motives were predicted to correlate with situations and locations in which heavy alcohol use was prevalent, whereas Coping motives were associated with drinking alone. Social motives were positively associated with light, infrequent, non-problematic drinking in social settings. Conformity motives are reactions to social pressures and were weakly positively related to alcohol use in social settings but not to drinking problems.

Model Test for Cooper's Four-Factor Drinking Motivation

Cooper (1994) tested the four-factor model with 2,052 randomly selected adolescents aged 13-19 in Buffalo, New York. The racial composition was: White (48%), Black (44%), and Other (8%). Gender representation was: female (50.4%) and male (49.6%). All of these adolescents reported using alcohol at some point during their lifetime. Of these sampled, 95% had consumed alcohol in the past 6 months, 21% reported to have had five or more drinks in a row, and 16% reported experiencing intoxication at least once a week during the past 6 month. Forty-eight percent of those who had drunk in the past 6 months also had alcohol-related problems with key figures (e.g., parents, friends, dating partners) and life stations (e.g., school, work).

To examine the model fitness, in addition to the proposed four-factor model, three other models were tested with Confirmatory Factor Analyses (CFA). These were: (a) a one-factor model, (b) two sets of a two-factor model (Coping/Enhancement motives vs. Social/Conformity motives and Enhancement/Social motives vs. Coping/Conformity motives), and (c) a three-factor model (Coping motives, Conformity, and Enhancement/Social motives). CFA found the four-factor model had the best model fitness. According to Bentler and Bonett (1980), a factor model is considered adequate if a goodness-of-fit index is .90 or over. The fit index of the four-factor model was .93 in Normed Fit Index (NFI; Bentler & Bonett, 1980), and .94 in Comparative Fit Index (CFI; Bentler, 1990). NFI and CFI of the one-, two-, and three-factor models ranged from .57 - .87. According to Bryant and Yarnold (2001), the ideal standard root mean square residual (RMSR) is close to zero. The RMSR of the four-factor model was the best (.05). The RMSR of the one-, two-, and three- factor models ranged from .07 - .10.

Factor loadings yielded four distinctive differences in the four-factor model. The alpha coefficient of each factor demonstrated over .80, which is considered as a high internal consistency reliability (Shavelson, 1996); Social motives (.85), Coping motives (.84), Enhancement motives (.88), and Conformity motives (.85). Further investigations were conducted to examine within-group differences on gender, race, and age. Chi-square differences demonstrated that the data of the four-factor model statistically and significantly fit better across the subgroups than those in other models; Gender (NFI: female = .91, male = .91; CFI: female = .94, male = .93; RMR: female = .05, male = .06), Race (NFI: Black = .90. White = .91; CFI: Black = .93, White = .93; RMR: Black = .05, White = .06), and Age (NFI: younger adolescent = .91, older adolescent = .91; CFI: younger adolescent = .93, older adolescent = .93; RMR:

younger adolescent = .06, older adolescent = .05) (Younger adolescents are under 17.5 years old, whereas older adolescents are 17.5 or over 17.5 years old.)

Three-way multivariate analysis of variance (MANOVA) and three-way univariate analyses of variance (ANOVAs) were conducted to examine mean differences across gender, race, and age. MANOVA found statistically significant main effects for gender, race, and age (Fs > 5.0, ps < .001), and an interaction effect for gender x age ($F = 2.5$, $p < .05$). On main effects, more White adolescents drink for Social, Coping, and Enhancement motives than their Black counterparts. Males scored higher in comparison to females for Social, Enhancement, and Conformity motives. Older adolescents were more likely to drink than those that were younger for Social, Coping and, Enhancement motives. It was more likely that younger adolescents were motivated to drink for Conformity with others. Further, the older the males became, the more they drank for positive affect reinforcements (Social and Enhancement motives). The interaction effect showed that females under 15 were more likely than males under 15 to drink for Coping, Enhancement, and Conformity motives. However, all four factors increased with age among males than females. More males than females were likely to drink for positive affect reinforcements. Regardless of gender, younger adolescents were more apt at avoiding peer group sanctions.

After controlling for gender, race, and age, the four drinking motives explained 14% of the variance in quantity and 20% of the variance in frequency regarding the 6-month alcohol use. Coping, Enhancement, and Conformity motives accounted for 26% of the variance in heavy drinking and 20% of the variance in drinking problems. As predicted, Enhancement motives and Coping motives were statistically significant predictors for heavy drinking ($\beta = .39$, $p < .001$ and $\beta = .20$, $p < .001$, respectively) and drinking problems ($\beta = .14$, $p < .001$ and $\beta = .33$, $p < .00$,

respectively); the stronger predictors were Enhancement motives for heavy drinking and Coping motives for drinking problems. Although Conformity motives were negatively related to heavy drinking (β = -.08, $p < .05$), as opposed to the hypothesis, it was positively related to drinking problems (β = .07, $p < .05$).

Cooper (1994) explained, after controlling for demographic variables and average number of daily alcohol consumption in the past 6 months, Enhancement motives were not statistically significant (β = .05, $p > .10$) on drinking problems. However, Coping motives remained as significant (β = .28, $p < .001$). According to Cooper, Coping motives were an indirect (through alcohol use) predictor for drinking problems. Further, after controlling for alcohol use, Conformity motives were also directly related to drinking problems (β = .08, $p < .01$).

Empirical Model Supports with College Populations

The validity of DMQ-R for a college population was supported by the research of MacLean and Lecci (2000). Their study examined 290 undergraduate students (169 females; 121 males) aged 17 to 38 (M = 18.1), who had consumed alcohol in the past 30 days (Lecci, MacLean, & Croteau, 2002). The ethnic backgrounds included Caucasian Americans (94%) and African Americans (6%). Consistent with the results of the original study by Cooper (1994), CFA indicated better goodness-of-fit indexes on the four-factor model fit than those of the three-, two-, and one-factor models. Psychometric properties of these factors were excellent: AGFI (adjusted-good-of-fit index) (.86), TLI (Tucker-Lewis index) (.94), and CFI (.95). The indexes of the other models ranged between .52 and .90: RMSR of the four-factor model was .063, whereas, the others ranged from .066-.086. The Cronbach's alpha coefficients of the four-factor model were excellent: Social (.92), Coping (.90), Enhancement (.87), and Conformity (.81).

Consideration of Conformity Motives

Cooper (1994) found that the Conformity subscale indicated the lowest zero-order correlations with other subscales: r = .31, .22, and .16 with Social, Coping, and Enhancement subscales, respectively. Similarly, in the study by MacLean and Lecci (2000), the Conformity motives were correlated lowest with Enhancement (r = .25), Social (r = .31), and Coping (r = .32). Consistent with these findings, in a study with a sample of collegiate athletes (N = 227: 45.4% male, 54.6% females; 89.7% White, 7.3% Black, 1.5% Asian/Pacific Islander, 0.4% Native American, and 1.1% Others) by Martens, Cox, Beck, and Heppner (2003a), Conformity motives showed the lowest bivariate correlations with other motives: .33 with Enhancement, .47 with Coping, and .41 with Social. Bivariate correlation of Social with Enhancement and Coping was .69 and .54, respectively. Bivariate correlation between Enhancement and Coping was .51. Internal consistencies reported by Martens et al. were Enhancement motives (r = .89), Coping motives (r = .84), Social motives (r = .90), and Conformity motives (r = .76). Due to lower fit indexes (Incremental Fit Index (IFI) = .90; CFI = .90; TLI = .88) than conservative criteria for acceptable model fit in the four-factor model with their sample, Martens et al. tested a three-factor model that excluded the scale of Conformity motives and found it fit better (IFI = .94; CFI = .94; TLI = .93) than the four-factor model. In contrast to the four-factor model that was originally tested with adolescents, the three-factor model was examined with adults and also showed good psychometric properties (NFI = .91; CFI = .92; RMR = .04); alpha coefficient of each factor was .85 (Enhancement motives), .81 (Coping motives), and .77 (Social motives) (Cooper, Russell, Skinner, & Windle, 1992). As a result, Martens et al. concluded that construct validity of Conformity motives may be more pertinent to younger adolescents than college athletes.

However, by comparing Asian and non-Asian college students, Theakston, Stewart, Dawson, Knowlden-Loewen, and Lehman (2004) found some relationships between drinking motives and ethnicity. Conducted in Canada, this study explored relationships between personality and drinking motives. The participants were 581 (66% female; 34% male) undergraduate students classified as drinkers by drinking at least once in the past year. With regard to ethnic background, 50% were reported as Asian (half of them were of Chinese followed by Taiwanese, Korean, Indian, East Indian, Filipino, Japanese, Cantonese, Vietnamese, Singaporean, Thai, and Malaysian descent), whereas the other 50% classified as non-Asian were mostly dominated by Europeans followed by Canadians, Middle Easterners, Australians, and New Zealanders. No further explanation was provided as to whether these college students were hyphenated Canadians alone, F-1 students alone, non-F-1 students alone, or mixed with all groups. Results indicated a tendency for Asians to score lower than non-Asians on Enhancement (r = -.25) and Social (r = -.16) motives, but higher on Conformity motives (r = .16).

Due to the correlation between Conformity motives and Asian students, Theakston et al. (2004) argued that Asian students are more likely to drink based on an external expectation to fit into social situations, whereas non-Asian students drink in order to enhance their individual needs. Dichotomized differences between European cultures, including Australia and New Zealand, and non-European cultures have been documented in the literature (Hofstede, 1980; Triandis, McCusker, & Hui, 1990). The former cultures are thought to possess individualistic value orientations consistent with self-alliance, and the latter cultures are known to have collectivistic value orientations emphasizing group harmony. Taking these cultural aspects into account, Theakston et al. considered Conformity motives to parallel qualities found within collectivistic cultures, in which decisions are made to respond to the needs of the group, rather

than for individuals to pursue their exclusive desires. By investigating alcohol use among the international college students with Cooper's four-factor model, the current study will provide further data on the cultural aspects of the Conformity motives.

Summary

Cooper's (1994) four-factor drinking motivation model was introduced in this chapter. The model is cross-designed with two dimensions, the valence (positive or negative affects) and the source (internal or external rewards), forming four motives of Enhancement, Coping, Social, and Conformity. Tests of the model indicated excellent psychometric properties among adolescents and young adults. However, one study has shown that the three-factor model, which excluded Conformity motives, was better equipped to examine a sample of predominately White collegiate athletes. In contrast, another study found a stronger relationship between Conformity motives and Asian college students than between these motives and their non-Asian counterparts in use of the four-factor model. Taking these results into account, the inclusion of a Conformity subscale is more relevant for a study that focuses on international college students.

CHAPTER THREE

REVIEW OF LITERATURE

Research-oriented topics that relate to the current study are provided in this chapter. Profiles of non-immigrant international college students (F-1 students), sources of their acculturation stress, willingness to pursue counseling, as well as coping strategies and cultural orientations are explored. The negative consequences of alcohol use among 4-year college students, and empirical studies on alcohol use by community college students, as well as F-1 students at both 4-year institutions and graduate schools are presented. Lastly, research limitations on international students are discussed.

Non-Immigrant International College Students (F-1 students)

Characteristics of F-1 Students

Population. Based on data provided by IIE (2003), during the 2002/03 academic year, nearly 590,000 international college students enrolled in American higher education: 2-year institutions (97,000), 4-year institutions (190,000), graduate schools (270,000), and other programs (e.g., ESL). This enrollment was 4.6% of the total in post secondary schools. The growth rate of their enrollment decreased from 6.4% during the academic 2001/02 year to 0.6% during the 2002/03 academic year. According to IIE (2003), aftermath of the September 11 (9/11) terrorist attacks and tightened visa issue restrictions by the U.S. government may be direct and indirect reasons for this decline. In addition, economic recessions of native countries, particularly Asian countries, also contributed toward diminished enrollment rates.

During the 2002/03 academic year, the 4-year college and graduate institutions with the largest population of international students were: the University of Southern California (CA), New York University (NY), and Columbia University (NY). The 2-year colleges with the largest population of international students were: Houston Community College (TX), Santa Monica Community College (CA), and Northern Virginia Community College (VA).

Demographic origins. International students attending 2-year institutions, 4-year institutions, and graduate school came from over 180 nations (IIE, 2003). The top ten leading countries sending these students were: India (74,600), China (64,800), Korea (51,500), Japan (46,000), Taiwan (28,000), Canada (26,500), Mexico (12,800), Turkey (11,600), Indonesia (10,400), and Thailand (10,000). Students from Asian countries comprise over half (51%) of all international enrollment, followed by students from Europe (13%), Latin America (12%), Africa (7%), the Middle East (6%), and North America and Oceania (5%).

According to Koh (2004), of the nearly 97,000 international students in 2-year institutions, the top ten leading countries of origin are: Japan (16 %), Korea (9%), China (4%), Mexico (4%), Taiwan (4%), Hong Kong (3%), Indonesia (3%), India (3%), Colombia (3%), and Kenya (3%). Among the 20 leading countries of origin, less than half of these students are from Asian countries (43%), followed by those from Latin American countries (12%), the Middle East (3%), and Africa (3%). These international community college students are concentrated in California, Florida, New York, and Texas.

Majors and degrees. During the 2002/03 academic year, according to the data provided by IIE (2003), the most popular fields of study for all international college students enrolled in American higher education were Business and Management (20%), Engineering (17%), Mathematics and Computer Sciences (12%). Regarding international students at 2-year

institutions, Koh (2004) noted that three of the most popular fields of study were "Other" (24%), Business and Management (19%), and "Undeclared" (15%). There are no detailed descriptions for "Other."

During the 2000/01 academic year, of the nearly 580,000 students who earned associate degrees, over 11,000 (2.0%) were international students. Of over 1.2 million bachelor's degrees conferred, slightly less than 40,000 (3.2%) were awarded to international students (NCES, 2002). The number of these international students followed after Asian/Pacific Islanders (79,000; 6.3%) and Hispanic (78,000; 6.3%), proceeding with American Indian/Alaska Native Americans (slightly over 9,000; 0.7%). Nearly 470,000 graduate students earned master degrees, and over 60,000 of them (13.1%) were identified as international students. This number was surpassed only by White non-Hispanics (over 320,000; 68.4%). Approximately 11,000 (24.4%) doctoral degrees were awarded to international students. They were the second largest group after White non-Hispanic students (over 24,000; 61.1%) (NCES, 2002).

Attractions of U.S. higher education. The actual percentage of F-1 students is uncertain, since different parameters are used by education institutions to define "international students" (S. Bennett, personal communication, October 29, 2004). However, it is believed that the majority of these international students are non-immigrant college students who came to the United States to pursue various educational opportunities. Their goals range from acquiring English language skills to earning postsecondary degrees. F-1 students find studying at American universities appealing for the following reasons: (a) to make educational and technological advancements that were unavailable in their home countries, (b) to gain prestige with a degree from an American institution, (c) to take advantage of available scholarships or other financial assistance,

(d) to learn about the American culture including the English language, and/or (e) to escape difficult political or economic conditions in their home countries (Sandhu & Asrabadi, 1994).

According to Wen (n.d.), advantages of attending community colleges for F-1 students are: (a) quality education at a much lower cost, (b) flexible and less demanding, (c) lower scores or no requirement of the Test of English as a Foreign Language (TOEFL), (d) smaller class size and easier communication with instructors, (e) transferable credits to 4-year institutions, (f) supportive learning environments, (g) wide variety of courses, and (h) specialized short-term certificate programs such as computer networking and real estate management.

Contributions of F-1 students to U.S. higher education. F-1 students in U.S. higher education provide a variety of contributions to cultural, intellectual, and economic milieus (IIE, 2003). According to Sandhu and Asrabadi (1994), the increased presence of students from different countries elevated cultural diversity on American campuses as well as in American society. The demographic composition in the United States has been rapidly changing. This is mainly due to changes in immigration laws, such as the 1965 Immigration Act and the 1986 Immigration Reform and Control Act, which encouraged immigration from non-European countries (Feagin & Feagin, 1996). Influenced by this societal change since the 1970s, the number of non-White college students including international students between the 1976/77 academic year and that of 2000/01 has almost doubled (NCES, 2002). The proportion of White college students to non-White college students changed from 86% vs. 14% in 1976/77 to 73% vs. 27% in 2000/01 (NCES, 2002).

The presence of F-1 students increases intercultural awareness and promotes global unification (Hirsch, 1999; Pedersen, 1991). Interaction with these students not only increases American students' knowledge of other cultures, but also broadens their perspectives, values,

beliefs, and worldviews, helps them communicate with those who are not native English speakers, and increases flexibility and tolerance toward diverse populations. American students are officially and unofficially able to learn foreign languages from international students. Upon return to their homelands, many F-1 students become leaders in various professional fields. Therefore, F-1 students' positive experiences reinforce close international ties between their home countries and the United States (Schevitz, 2004).

F-1 students have been significantly contributing to advance the fields of science and engineering in the U.S. higher education (Pedersen, 1991; Zakaria, 2005). Nearly one of four students (24.4%) who earned a doctoral degree in 2000/01 was international, although their demographic breakdown was not provided (NCES, 2002). F-1 students are also significant contributors to the U.S. economy through their expenditures on tuition and living expenses including room/board, books and school supplies, transportation, and health insurance (IIE, 2003). During the 2002/03 academic year, F-1 students brought 12 billion dollars into the U.S. economy. These funds are from family and personal sources, and scholarships from the government, universities, or private corporations. Regardless of the type of institution, 66% of F-1 students receive financial support from family and personal savings (IIE, 2003); of the F-1 students, particularly those enrolled at community colleges, 81% depend on family funding and personal savings (Koh, 2004). According to the Department of Commerce, this revenue represented the fifth largest U.S. service sector export (IIE, 2003).

F-1 Students and Acculturation Stress

Sources of Acculturation Stress

Despite their academic success in general, the literature has consistently suggested that F-1 students are highly vulnerable to stress derived from cross-cultural adjustment (Chen, 1999; Leong & Chou, 1996; Mori, 2000; Pedersen, 1991; Sandhu & Asrabadi, 1991; Wan, Chapman, & Biggs, 1992). While undergoing stress, negative affects such as anxiety, helplessness, frustration, anger, and depression are engendered. Lazarus and Folkman (1984) have conceptualized that stress occurs when an individual perceives the internal and/or external resources are insufficient to cope with environmental demands, therefore, feels threatened. According to these researchers, stress results after two consecutive cognitive appraisals. Primary appraisal occurs when the individual evaluates the situation, whereas secondary appraisal examines whether coping resources available to him or her will alleviate the situation (problem-focused coping) or control the negative emotions engendered by the situation (emotion-focused coping). Perceived stress among individuals may differ based upon their interpretation of the situation, and a set of resources, coping skills, and coping orientation. To extend this framework to acculturation stress among F-1 students, Wan et al. argued that the primary and secondary appraisals are posited to a role of the cultural distance between American culture and the home culture of the F-1 student, which, in turn, influences coping skills, coping orientation, and social support networks available to the student. New academic demands and new social environments are commonly shared by both international and American college students (Hechanova-Alampay, Beehr, Christiansen, & Van Horn, 2002). However, the transition is more challenging for F-1 students because they undergo these changes in the unfamiliar American cultural systems. Cross-cultural adjustment is harder when there is little in common between a host

culture and a home culture regarding values, behavioral norms, and verbal/nonverbal communication styles (Babiker, Cox, & Miller, 1980; Triandis, 1994). Furthermore, changes must be made in a short period of time in order to successfully achieve their educational goals. This requirement could be particularly overwhelming for F-1 students from non-English speaking countries, who compose the majority of this group.

Literature reviews have revealed that major acculturation stressors that confront F-1 students include language barriers, academic performance, financial difficulties, perceived prejudice and racial/ethnic discrimination, culture shock and homesickness, social isolation and alienation, and a loss of social support (Aubrey, 1991; Chen, 1999; Leong & Chou, 1996; Lin, & Yi, 1997; Mori, 2000; Pedersen, 1991; Sandhu & Asrabadi, 1994; Sodowsky & Plake, 1992; Yang & Clum, 1995; Yeh & Inose, 2003). These stressors are not independent variables; rather they intertwine with each other. The main source of stress and the degree to which they experience stress depend on how these students individually evaluate the situation, how much they have support networks, and how well they use social skills to cope with the situation.

Language. An insufficient command of the English language is documented as the most stressful source of cross-cultural adaptation for F-1 students (Poyrazli, Arbona, Bullington, & Pisecco, 2001; Yeh & Inose, 2003). The student's level of English proficiency affects academic performance, social interaction, and general adjustments to the American culture, which in turn influence the psychological well-being of these students. A lack of adequate English skills may cause low self-esteem, which may lead to anxiety and depression (Lin & Yi, 1997). As a communication tool, a common language spoken in a society must be learned to fulfill human needs (Salzmann, 1993). The English language belongs to the Indo-European language family, which has a dozen branches sharing structural similarities descended from one common ancestral

language. These languages are mostly spoken in Europe and southwestern Asia including India and Iran (Salzmann, 1993). Exceptions include former British and American colonies such as Kenya, Singapore, and the Philippines where English, in accompaniment of other ethnic languages, is one of the official dialects (Kiswahili in Kenya; Chinese, Malay, Tamil in Singapore, and Tagalong in the Philippines). The English language is not spoken in the majority of African, Middle Eastern, Asian, and Central as well as South American countries. As a result, language barriers are higher for F-1 students from these non-English speaking countries. In the study by Yeh and Inose with 372 F-1 undergraduate and graduate students, a statistically significant relationship was found between perceived English skills and acculturative stress; the students who perceived their English skills lower had higher acculturative stress. In the same study, non-European students had more acculturative stress than their European counterparts. In contrast, the research by Rahman and Rollock (2004), who sampled F-1 students from India, Pakistan, and Bangladesh, found English competence was not a statistically significant predictor for acculturation stress.

Academic performance. Advanced English skills are required to read study materials, take notes, understand lectures, and write essays and term papers (Mori, 2000). Aubrey (1991) explained that active participation in class discussion and class presentation are important components in American classrooms; however, these activities are new to F-1 students, particularly those from Asia, the Middle-East, and Africa. In their home countries, class interactions between professors and students are hardly expected. Students sit and take notes quietly while an instructor lectures. Student evaluations are generally based on paper tests or essay writings. Aubrey stated that, therefore, in the United States, participation in class discussions and class presentations are threatening for F-1 students without good English-

speaking skills. These students are embarrassed when they cannot understand class discussions or express themselves well in English. Additionally, unwillingness to speak up in class or initiate interactions with professors and peers could be negatively perceived as passive and less intelligent. It is overwhelming for these students to learn new learning styles and improve various English skills simultaneously. Moreover, unfamiliarity with academic resources such as the library and writing center may diminish their abilities to fully employ problem-focused coping strategies.

With 412 F-1 students in graduate schools, Wan, Chapman, and Biggs (1992) found perceived English skills the strongest predictor for stressful classroom situations. This study also identified that perceived English skills, in comparison to academic skills (e.g., ability to learn, GPA), social problem-solving skills, and prior knowledge about American educational systems (e.g., teaching methods, classroom expectation), were significantly related to self-evaluated coping skills. Similarly, in a study on 79 Turkish undergraduate (26%) and graduate (74%) students in the United States, Poyrazli et al. (2001) reported that there was a strong negative relationship between writing and reading English proficiencies and adjustment stress. In contrast, research by Misra, Crist, and Burant (2003) examined 143 F-1 undergraduate (77%) and graduate (23%) students from non-English speaking countries and did not identify English skills as a strong predictor for life stress; instead, racial discrimination, followed by adaptation to a new culture, and academic pressure were more correlated with life stress. The academic stressors in this study were derived from overload, isolation, lack of resources, failure to achieve goals, competition, academic deadlines, and work responsibilities.

Financial difficulties. Financial concerns are one of the crucial stressors for F-1 students (Yang & Clum, 1995). To maintain their student status, F-1 students must enroll full-time every

semester; as a principle, a part-time status is not allowed for these students (Lin & Yi, 1997). Additionally, since establishing in-state residency is not granted, they are required to pay costly out-of-state expenses throughout the enrollment. Due to restriction of employment, F-1 students cannot seek jobs in the U.S. labor market although some exceptions are granted (e.g., on-campus jobs, off-campus internships). Further, financial aid, scholarship, and student loans generally available for American citizens and permanent U.S. residents are not provided for F-1 students. When these aids are available, the number is quite limited and competitive. As a consequence, the status change from the citizen, who is granted full access to social resources in the home country, to the F-1 student, whose social activities are restricted in the United States, may cause stress (Chen, 1999). As described earlier, during the 2002/03 academic year, 66% of international college students, and 81% of those at 2-year colleges received financial support from family and personal savings (IIE, 2003; Koh, 2004). To avoid or reduce financial responsibilities of family, they are careful about expenditures. Moreover, it is stressful when remittance is not received so that they may pay bills in a timely manner. Poyrazli et al. (2001) reported that Turkish students awarded scholarships from their government indicated higher stress than their co-nationals without these scholarships because they often had trouble receiving their monthly remittance due to delayed wiring services between Turkey and the United States. An additional stressor for these students included the pressure to keep good academic records required to maintain their scholarships.

Further, when a home country undergoes an economic crisis, F-1 students from the country become extremely threatened. For example, Mexican currency (i.e., Peso), suddenly lost its value for the U.S. dollar by almost half of its worth, due to financial policies set in 1995 (Zietz, 1995). As a consequence, the amount of U.S. dollars that Mexican students received as

scholarship funds from their government was half of what they had been promised. The Mexican students who received remittance from their families were confronted with a crisis because their family members were also suffering economic disparity caused by the financial cutback (I. Lopes, personal communication, 1995). In addition, the Mexican government controlled the amount of U.S. dollars that were purchased in Mexico. As a consequence, even if families were wealthy enough to send extra remittance, they could not send money to their children in the United States because the government stopped such transactions (I. Lopes, personal communication, 1995). Similarly, the 1999 economic and financial crises in Asia scared students from countries such as Thailand, Korea, Malaysia, Singapore, Taiwan, and Indonesia when currency values in these countries sharply dropped against the U.S. dollar (Chen, 1999; Karunatilleka, 1999). Regardless of the reason, when financial resources are insufficient or no longer available, F-1 students inevitably seek alternative resources to meet their financial needs. Because legal employment is not easily allowed, one alternative may include illegal jobs. With this option, F-1 students go to extreme measures in order to avoid deportation (e.g., hiding from authorities). Some F-1 students may voluntarily return to their home countries to undertake employment. While some may come back and complete their education, others may not.

Perceived prejudice, racial/ethnic discrimination, and socio-political influence. Influenced by social reality in the United States in which prejudice and racial/ethnic discrimination against non-Whites exist, F-1 students with non-White phenotypes may perceive prejudice and experience acts of racial discrimination (Hayes & Lin, 1994; Sodowsky & Plako, 1992; Yeh & Inose, 2003). According to Sandhu and Asrabadi (1994), non-White F-1 students may sense hatred from Americans as a member of a non-White group and as a member of a particular ethnic group. Further, on campuses and in local communities, F-1 students may be

viewed with ethnic stereotypes. Such racial experiences are extremely stressful for these students and sometimes may be harmful (Yoon & Portman, 2004). Chen (1999) argued that many F-1 students are from dominant groups in their home countries so that experiences of discrimination are quite disturbing. This may lead to low self-confidence and interfere with a smooth adjustment into new academic and social environments. Chen also stated that these feelings, such as a sense of harm and threat, may in turn intensify when students experience difficulties in their academic and social environments. Further, these experiences may potentially increase internalized anger and hatred toward both Americans and American culture, fostering reversed racial/ethnic prejudice and/or discrimination. Negative perceptions that Americans and F-1 students independently share may prevent them from developing positive relationships.

Further, Americans' perceptions of F-1 students are often directly reflected by the sociopolitical relationship between their home countries and the United States. For instance, after 9/11, Muslim international students, particularly males from Middle Eastern countries, became targets of physical attacks and hatred due to common ethnic attributes of the terrorist group (Southwick, 2001). Since 9/11, the U.S. government has intensified its screening when issuing student visas. According to IIE (2003), a series of these incidents related to 9/11 have affected the number of new students from Muslim countries such as Indonesia, Malaysia, Saudi Arabia, Kuwait, and the United Arab Emirates. In the year of 2002/03, enrollment rates for these students declined by 10% to 25% from the previous year.

Culture shock and homesickness. Culture shock is a psychological reaction to unfamiliar cultural norms encountered in unfamiliar environments (Furnham & Bockner, 1986). Every culture has an ethnocentric aspect that is believed superior or proper to other cultures (Okun, Fried, & Okun, 1999). Not all American values and behavioral practices are compatible with

those in the home countries of F-1 students. Therefore, American behavioral patterns often surprise these students. According to Chen (1999), as well reported, F-1 students are often surprised with casual relationships between faculty members and students, such as calling each other by their first names. Students from Africa and Asia are particularly surprised with this practice, as they are used to formal interactions between these two parties. Allowing eating and drinking in classrooms is also a surprise to many F-1 students. These students adopt these customs as they stay longer in the United States, and accordingly, the culture shock can diminish over time. However, other experiences, such as racial/ethnic prejudice and discrimination that F-1 students may continually encounter, should not be disregarded (Chen, 1999). These experiences, which are often accompanied with negative feelings such as sadness and anger, may not only hinder students from learning new behavioral repertoires more useful in American schools and social settings, but may cause them to develop resentment towards the American culture in general.

Living away from family and close friends is challenging for F-1 students. Sandhu and Asrabadi, (1994) stated that F-1 students often think about what family and friends are doing in their home countries. These students particularly miss ethnic foods, clothes, newspapers, entertainment (e.g., music, TVs, movies, books), and natural climates found back home. Limited access to others who share their ethnic culture may threaten maintaining ethnic identities of F-1 students. For younger F-1 students, this might prevent them from internalizing strong affiliations to their home countries (Pedersen, 1991).

Social isolation and alienation. In contrast to non-F-1 students who are often children of immigrants and who came to the United States with their families or to reunite with their families, F-1 students in general arrive in the United States alone. In addition to a physical

distance lying between their home country and the United States, F-1 students often develop a sense of loss from leaving their closest relationships back home (Chen, 1999). Until these students find friends who can replace, or at least partially fulfill the emptiness made by separation from family and friends back home, they feel vulnerable. Despite the well known reputation that Americans are friendly, the literature acknowledges that many F-1 students have found it difficult to become friends with Americans (Hirsch, 1999). According to Mori (2000), due to high mobile and individualistic American social systems, American friendships may not last and can appear to be superficial for F-1 students. In addition, language barriers, differences in values, behaviors, and life experiences between F-1 students and their American counterparts often prevent them from building close friendships. Chen (1999) explained that F-1 students, especially from Asia, are humble and indirect in verbal and non-verbal expression. However, these modest attitudes are perceived by Americans as less assertive, less competitive, less-self-reliant, and sometimes inferior. Consequently, these F-1 students feel disappointed and stop making friends with American students. A sense of social isolation and alienation are dangerous for the psychological well-being of F-1 students (Yeh & Inose, 2003).

Social isolation is particularly lonely and threatening for younger F-1 students who are transitioning into different developmental stages (e.g., adolescents, young adulthood), and have not yet found peer groups in their new environments. Self-identity is believed to develop mainly through affiliation and validation from peers in this life stage (Erikson, 1968). Therefore, lack of a reference group may confuse these young F-1 students and delay the development of a strong self-identity and ethnic identity, as well as self-esteem. Continuous feelings of isolation and alienation increase a sense of helplessness and meaninglessness of existence. These states of mind easily lead to distress and depression (Yeh & Inose, 2003).

A loss of social support. Living apart from their native countries often prohibits F-1 students access to familiar social support systems (Sandhu, 1995). Social support systems play a significant role as stated by Pedersen (1991) as, "A person's self-esteem and self-image are validated by significant others, who provide emotional and social support in culturally patterned ways" (p. 12). The impact of losing social support in a new environment is painful as Pedersen continuously explained, "Moving to a foreign culture suddenly deprives a person of these support systems" (p. 12). Yeh and Inose (2003) argued that developing compatible social support systems in the United States that equate with those they had established in their home countries is quite challenging for F-1 students. Combined with other sources of stress, these students may begin doubting their academic credibility, which in turn decreases their self-confidence. Simultaneously, their sense of social isolation and alienation might increase.

Other concerns. As noted by Mori (2000), F-1 students may feel pressure from family and friends back home. Prior to arriving on American campuses, many of these students demonstrated excellent academic achievements in their home countries. As a result, family and friends may set unrealistic goals, which in turn create a heavy load on students. When they cannot achieve these goals, they may feel shame. In addition, F-1 students often feel uncertain about their future, based on the decision to stay in the United States or go back home, which can raise intense emotions (Yang & Clum, 1995).

Moreover, Sandhu and Asrabadi (1994) explained that F-1 students feel guilty when they adapt to American values and customs, but feel more comfortable with American lifestyles than those within their home countries. This situation creates strong tension between F-1 students and their parents who expect their children to return home upon graduation. F-1 students from non-European countries are often trapped into this type of problem. Cultural values in these countries

teach children to respect their parents and dutifully conform to parental decisions. As a consequence, they struggle to decide between pursuing their individual desires, or abiding with their cultural norms.

Social Supports

Official supports for international college students are generally provided by international student services. Types of services vary depending on institutions (Chase & Mahoney, 1996). In general, colleges with a large body of international students provide various programs such as an orientation for newcomers, housing, language skills, social gatherings, and cultural events. Students in these institutions are not only able to meet co-national students and other F-1 students but they can easily receive support through such services (Misra et al., 2003). In contrast, F-1 students in colleges devoid of specialized international student services may feel isolated and confused about how to seek help and develop social networks. Chase and Mahoney (1996) conducted a survey on international affiliated programs at community colleges. Of the 624 institutions that participated in the survey, 85% provided programs associated with international students on their campuses. However, 39% of these colleges reported that there was no staff or faculty responsible for international education programs.

According to Mallinckrodt and Leong (1992), whether or not and how much support is available often affects levels of psychological well-being which can fluctuate based upon stressors attributed to cross-cultural adjustments. These researchers stated that social supports can enhance psychological life adjustments by serving as a buffer against the impact of life stress. Leong and Sedlacek (1986) found, in comparison to American students, F-1 students from non-European countries tend to seek help from faculty members for emotional-social problems. These researchers suggested that this tendency is reflected in their ethnic cultural practice in

which faculty are viewed as authority figures that provide protection and support. Additionally, Leong and Sedlacek considered this a reflection of their lack of, or less developed social networks.

A study by Misra et al. (2003) found that, in addition to family and friends back home, social supports for F-1 students are mainly from co-national students and those from other countries. In this study, strong group cohesion played an important role in reducing academic stress. In contrast, religious places were not recognized as sources of social support. Further, research by Hechanova-Alampay et al. (2002) found that F-1 students had fewer social supports than American students. These researchers also reported that fewer problems and lower stress due to cross-cultural adjustments were found among F-1 students who had close American friends from whom they were able to receive support. This finding is consistent with other studies that emphasize the importance of friendship with Americans (Olaniran, 1993; Ying, 2002).

F-1 students who have weak social supports and high stress are considered more at-risk for experiencing isolation and a higher level of suicide ideation (Yang & Clum, 1995). To achieve educational goals in unfamiliar environments, these students must develop new skills and new social networks. If they fail, they will remain highly vulnerable.

Help-Seeking in Counseling

The literature suggests that the concept of counseling is unfamiliar to F-1 students from non-European countries (Cheng, Leong, & Geist, 1993; Kuo & Kavanagh, 1994). In their home countries, counseling services do not exist or are limited to severe mental illness and psychological disorders (Bankart, 1997). When these students experience severe psychological stress, they usually somatize it by claiming loss of appetite, lack of energy, headaches, or

stomach pains (Misra & Castillo, 2004). This phenomenon is called "foreign student syndrome" by Ward (1967, p. 436). It posits that claiming physical symptoms may signify the rejection of psychological symptoms due to culture shock. In this way, the students can save face from stigma attached to psychological symptoms (Pedersen, 1991). Leong and Chou (1996) reported that F-1 students overuse health centers.

F-1 students, particularly those from non-European countries tend not to seek counseling on their own (Mori, 2000; Zhan & Dixon, 2003). Despite various symptoms caused by acculturation stress and an urgent need for mental health assistance, counseling services have been significantly underused by this population. Even when these students do seek available services, they are far more likely than their American counterparts to terminate prematurely (Leong & Chou, 1996). Researchers suggest various factors for underuse of counseling services by this population. Farina, Fisher, Boudreau, and Belt (1996) pointed out that the emotional focus utilized in counseling makes them uncomfortable due to a lack of familiarity with the process. Hill and O'Brien (1999) explained that seeking mental health services may be perceived as a sign of weakness. Mori (2000) stated that disclosing personal information to someone outside of a family or a circle of friends may lead to personal embarrassment and shame. As a result, receiving counseling services might be kept secret from the family back home, which may generate feelings of guilt. Mori also argued that the counseling process involves active verbal interaction between a client and counselor, which is incompatible with the cultural norms of many F-1 students. Students just want advice from a counselor, who appears to be an authority figure for them, to solve any given issue. Martinez, Huang, Johnson, and Edwards (1989) suggested that the barriers encountered by F-1 students in counseling might result from their insufficient command of English.

Nonetheless, it is suggested that premature termination may also be due to incompetence and/or inexperience among counselors in multicultural counseling (Lin & Yi, 1997; Leong & Chou, 1996; Mori, 2000; Pedersen, 1991). Sue and Sue (1999) argued that the psychological orientation of European counselors emphasize the importance of autonomy, independence, and assertiveness, over group loyalty, interdependence, and group harmony. These value orientations may manifest differences in worldviews between counselors and their clients. F-1 students may feel alienated during a course of counseling (Mori, 2000). In addition, a counselor's conscious or unconscious bias and prejudice toward F-1 students, especially non-White students, can prevent students from developing trust in their counselors (Pedersen, 1991). Thus, premature termination can be partially due to counselor's lack of cross-cultural competence or experience (Leong & Chou, 1996). Because of their hesitation in seeking professional help, F-1 students may search for other methods to cope with stress, including alcohol.

Meanwhile, in contrast to non-European countries where counseling services do not exist or are limited to severe mental illness and psychological disorders, it is believed that psychotherapy and counseling are well utilized in Europe (Bankart, 1997). According to Ægisdóttir and Gerstein (2000), however, even in some European countries such as Iceland, counseling is not prevalent. These researchers explain that social functions, such as drinking for men and consulting with a fortune-teller for women, serve as coping mechanisms. Therefore, students from both non-European countries as well as from Europe may refuse counseling services.

Coping Strategies and Cultural Orientations

Choices of coping strategies may be a manifestation of cultural orientations. Cross (1995) considered that a self-construal, which indicates how "an individual's self-system organizes

experience, directs behavior, and provides meaning and coherence to the person's life," is related to psychological well-being when an individual adjusts to a new culture (p. 674). The author explained that culture shapes a self-construal; therefore, two distinctive cultural perspectives, which are often referred to as individualism and collectivism, influence the orientation of a self-construal.

Triandis, McCusker, and Hui (1990) explained that European and American cultures, have an individualistic perspective wherein an individual's personal goals and needs take priority over those of a family/group. Individualistic behavior includes taking direct action, confronting others, speaking up for the self, resisting social pressures, and directly addressing a problem. In these value orientations, an individual is encouraged to develop an independent self-construal. In contrast, non-European cultures tend to have collectivistic perspectives, in which the self-construal is phenomenological rather than absolute, and primarily determined by social roles and group expectations within the cultural context. The goals and needs of a family/group supercede those of an individual. Collectivism nurtures the interdependent self-construal that responds to the needs of others and pursues group harmony, thereby confirming a sense of belonging with others. In this value orientation, insisting on an individual's own needs and desires may be considered as immature or selfish, and a threat to group solidarity. Therefore, in a group with interdependent value orientations, individuals with independent value orientations may be punished by censure and isolation.

With 220 F-1 students from Korea, Taiwan, China, and Japan enrolled in graduate schools, as well 220 American graduate students, Cross (1995) conducted a study to examine interrelationships among their self-construal, coping styles, social support, and psychological well-being. The findings indicated that the Asian group had higher scores on both interdependent

self-construal and stress than their American counterparts. Among Asian students, those who scored high on the independent self-construal also scored high on direct problem-solving strategies to reduce stress. In contrast, interdependent self-construal was a strong predictor for stress.

Cross (1995) pointed out that the orientation of a self-construal is likely a significant factor in directing an individual's cognitive processes and behavioral outcomes. The author explained that those with an interdependent self-construal may use an indirect coping strategy, which focuses on changing expectations or desires for compatible interaction with the environment, as opposed to direct coping strategies aimed toward changing the situation. Taking these findings into the stress-coping model by Lazarus and Folkman (1984), one could argue that F-1 students from collectivistic cultures tend to use an emotion-focused coping strategy, instead of a problem-focused coping strategy, which may include alcohol consumption, to deal with stress and change their negative emotions. Further, individuals with an interdependent self-construal experience more peer pressure to conform with group norms.

College Students and Alcohol Use

4-Year College Students

Alcohol has been misused more than any other drug by college students (Wechsler, Lee, Kuo, & Lee, 2000). The Core Alcohol and Drug Survey (CADS) by the Core Institute (n.d.), which is an annual cross-sectional national survey, indicated that the percentage of students who reported drinking at least once within the year prior to the survey increased from 83% in 1995/96 to 86% in 2003. The same survey showed an increase in drinking within 30 days prior to the survey from 70% to 75%. In 1998, the average number of drinks consumed by students in the

sample was 9 per week for males and 4 for females. In 2003, the average number of drinks per week was 10 for males and 4 for females. In 1995/96, 42% of students in the sample engaged in binge drinking. In 2003, the number increased to 50%.

Excessive alcohol use often impairs rational judgment and self-control. Heavy episodic drinking is associated with a variety of negative consequences that can occur to both drinkers and those around them (NIAAA, 2002). Caron, Moskey, and Hovey (2004) conducted a comparative survey study to examine alcohol use and related problems with members of Greek organizations. Survey questionnaires were distributed in 1994 (142 fraternity members and 161 sorority members participated) and in 2000 (89 fraternity members and 116 sorority members responded to the survey). The results revealed that the majority of respondents in both groups began to use alcohol prior to entering college. However, there was a difference in the number of those who reported pre-college drinking between the samples taken in 1994 (78%) and 2000 (69%). One-third of both samples in 1994 and in 2000 answered that they drank 4-6 drinks in a row. The heaviest alcohol use occurred in bars among the samples in 1994 (42%) and in fraternity parties in 2000 (34%). Nearly 65% of respondents both in 1994 and in 2000 indicated an increase in their drinking customs since entering college. Over 65% of each set of respondents also reported that their drinking habits stayed the same since joining a fraternity or sorority. A group difference was found on a question about pressure to drink when others were drinking; more students in the 1994 samples (18%) received pressure than those in the 2000 samples (9.3%).

Caron et al. (2004) also found a difference in these two groups regarding their reasons for drinking. More students in 2000 (59%) drank to have a good time and to celebrate than those in 1994 (48%). More students in 1994 (21%) reported that they drank because their friends were

drinking than those in 2000 (16%). Regarding the consequences of alcohol use, both of the samples reported being drunk (91% of 1994; 90% of 2000), hangover (87% of 1994; 90% of 2000), using a fake ID to buy alcohol (40% of 1994; 25% of 2000), offering alcohol to a minor (55% of 1994; 53% of 2000), allowed a friend to drive while under the influence (WUI) of alcohol (60% of 1994; 37% of 2000), driving WUI (47% of 1994; 27% of 2000), and being arrested WUI (5% of 1994; 2% of 2000). Among these negative consequences, statistically significant group differences were found for fake ID's, allowing a friend to drive WUI, driving WUI, and being arrested WUI. Caron et al. (2004) argued that these differences in a period of six years were attributed to efforts of educational programs targeted especially at Greek organizations.

2-Year College Students

According to the American Association of Community Colleges (AACC) (2004), community colleges constitute the largest sector of higher education. Every year, they enroll over 10 million students. On community college campuses, student profiles generally differ from those of 4-year colleges with regard to demographic variables such as age (average age is 29 years old), student status (63% of students are part-time), length of time at school (longer), living environment (more commuting and more living with parents or spouses/children), and ethnic composition (more minorities). In comparison to students in 4-year colleges, community college students are more likely to have off-campus responsibilities attributed to employment and family. While existing literature on alcohol use provides plenty of information on undergraduates in 4-year institutions, little is known about community college students (Chen & Paschall, 2003). One of the factors attributed to exclusion of students from 2-year institutions on alcohol-oriented

research is often due to differences in overall on- and off-campus lifestyles between these two college groups (Yu, Evans, & Perfetti, 2003).

CADS is one of the few studies that has examined 2-year institutions (Presley et al., 1993; Presley et al., 1996; Presley et al., 2002; Presley et al., 2004). The results of CADSs indicated that the percentage of 2-year college students who drank in the past 12 months prior to the study was 77% in 1989/91, 79% in 1992/94, and 80% in 1998-2000. In 1992/94, 60% of the sample answered that they drank at least one day within the past 30 days, while 64% of the participants in 1998-2000 did so. The average amount of drinks that were consumed per week were reported as 2.1 drinks (1989/91), 4.1 drinks (1992/94), 7.5 drinks (1998), 4.9 drinks (1999), 4.4 drinks (2000). The percentage of 2-year college students who had engaged in binge drinking in the past 2 weeks prior to the study was 30% in 1989/91, 34% in 1992/94, and 41% in 1998-2000. The proportion of students engaged in heavy drinking increased by almost 40% in a decade. Yet statistically significant difference was indicated regarding the number of heavy drinking episodes between 2-year and 4-year college groups; the former binged less than the latter, on average. Overall, the reports from three CADSs (Presley et al., 1993; Presley et al., 1996; Presley et al., 2002) explained that fewer students at 2-year colleges consumed alcohol, in comparison to their 4-year counterparts.

Two more studies specific to alcohol use among community college students were found in the literature review. Based on a survey conducted in the State of Wyoming with 140 community college students [female (73%), White (89%), Black (2%), Latino (5%), and Asian/Native American/Other (4%)] with the average age of 28, Coll (1999) found that 85% of the students drank beer, wine, and liquor in the past year. This proportion was the same as that of 4 year college students reported in the CADS (Presley et al., 2004). In the study by Coll, 20% of

the students reported 5-6 drinks at a sitting. This proportion was half of the community college students reported in CADS. Further, consequences resulting from drinking were reported as: driving after drinking (31%); driving while drinking (19%); fighting with someone after drinking (7%); missing class because of a hangover (15%); experiencing hangovers (61%); experiencing nausea and vomiting because of drinking (39%); being criticized by a date because of drinking (20%); and missing class after drinking (15%). In comparison to the study by Greenberg (1992), Coll stated that these findings were similar to those found among 4-year college students. Even though the frequency of some consequences (e.g., driving after drinking, driving while drinking, and fighting with someone after drinking) and binge drinking were lower than those at 4-year institutions, risky drinking behavior was also indicated at 2-year institutions.

Chen and Paschall (2003) conducted a survey on alcohol use with 1,029 community college students in the State of California. Of the participants, 58% were females. The mean age was 18.9 years old. Ethnic backgrounds were White (38.7%), Black (5.2%), Latino (26.8%), Asian/Pacific Islander (20%), and other (9.3%). The percentage of students who reported drinking alcohol in the past 12 months was 74%. Males drank more than females. Because the research design focused on malt liquor drinkers and non-malt liquor drinkers among community college students, this study does not provide statistics comparable to other alcohol use studies. However, 44% of white Americans and 41% of Latino Americans as opposed to 25% of Asian-Americans and 25% of African-American students reported drinking malt liquor. In comparison to non-malt liquor drinkers, quantity and frequency of alcohol consumption by malt liquor drinkers were higher. More alcohol use disorders defined by the Alcohol Use Disorders Identification Test developed by the World Health Organization were found in the malt liquor

drinking group than the non-malt liquor group. Over half of the malt liquor drinkers (51%) drove after drinking, while less than a quarter of non-malt liquor drinkers (23%) did.

Overall, findings from these two studies indicated that alcohol use was prevalent in 2-year institutions. Recognition that community college students drink less as opposed to their counterparts at 4-year colleges may be statistically meaningful in a relative group comparison. However, this does not imply that alcohol use on community college campuses is not problematic and that no further studies are needed. Instead, additional studies are necessary to better understand drinking patterns among community college students and develop educational and treatment programs tailored to this population.

F-1 Students

Three studies provided information on alcohol use among F-1 students. Millar (1999) investigated drinking behavior among graduate students in business school, including F-1 students. Subgroup differences among F-1 students were not directly investigated. A self-administered questionnaire developed for this study was collected from 390 students ranging in age from 23-46 years old; 85% were American students; 15% were F-1 students. The descriptive analysis found that 94% of the samples were current alcohol users; of these, 83% of the F-1 students and 96% of the American students reported alcohol use. Binge drinking was present among 28% of American students compared to 18% of F-1 students. The definition used for binge drink was seven drinks per week or a drink a day in a two-week period. Chi-square analysis found the group difference statistically significant. In this study, the F-1 students revealed that they began to drink more alcohol after they entered graduate school. The reasons given were to socialize with American students, relieve stress caused by loneliness, and overcoming the difficulties of finding internship opportunities. The drinking behaviors of F-1

students in this study were less problematic than those of their American counterparts; however, the motivation to drink sought to alleviate adjustment issues, including cross-cultural stress.

Oshodin (1982) investigated alcohol consumption among international college students from Nigeria. In the study, 300 college students (200 males and 100 females) residing in New York City were randomly selected. Using a questionnaire designed for the survey, the study found that 80% of males and 75% of females were alcohol users. Of those who drank, 70% answered that they began drinking in Nigeria. More than half of the participants admired those who consumed alcohol, and 60% agreed that their friends approved of alcohol consumption. Seventy percent indicated that they used alcohol two or more times per week to wake up in the morning, and 40% reported having trouble with their friends or driving WUI. Many students admitted that they broke self-made promises to change their drinking habits (70%). More than half of the respondents reported that they used alcohol more when facing troubles or experiencing pressure (65%), and many of them agreed that disappointment, arguments, and aggravation caused them to drink excessively (70%). Less than half of the participants targeted feelings of guilt and aggravation as a cause for excessive drinking.

Oshodin's (1982) study did not examine interactions between drinking levels and stressful life events associated with cultural adjustment. Importantly, Oshodin explained that alcohol was viewed as food and a source of nutrients in traditional Nigerian culture. In addition, European influence and the wine industry's commercial advertisements promoted alcohol consumption as a symbol of modernization in Nigeria. This study did not investigate whether the students perceived drinking as a process of assimilation to American culture rather than as a coping mechanism for acculturation stress. Thus, the students' drinking motivation was unclear.

Nonetheless, the study presents a snapshot of high-risk drinking behavior by one international student subgroup.

Misra and Castillo (2004) reported that, out of 143 F-1 students who participated in their study, 38% consumed alcohol by having at least one drink in the last week. In contrast, out of 249 of their American counterparts, 73% had at least one drink in the last week. Using the same samples, Misra et al. (2003) indicated that, of the 62 male F-1 students studied, 53% had at least one drink in the past week, while only 28% of their female counterparts consumed alcohol at least once in the past week. No further examinations were reported on alcohol use in these studies.

Research Limitations on F-1 Students

There are several factors that may contribute to the lack of research on substance use and F-1 students in higher education. First, these students represent nearly 200 countries. It is acknowledged that examining each within-group norm is important to avoid overlooking the influence of each cultural effect. For instance, in a study on binge drinking among Chinese, Korean, and White college students, Luczak, Wall, Shea, Byun, and Carr (2001) found group differences between Chinese and Koreans after controlling for aldehyde dehydrogenase (ALDH2). ALDH2 is a genotype prevalent among Northeastern Asians such as Chinese, Japanese, and Koreans, and associated with lower rates of heavy drinking due to its effect to slow alcohol resolution. Among Chinese and Korean students with the same condition of ALDH2, the binge drinking rate was more than four times higher among Koreans than Chinese. The different drinking patterns of these two Asian subgroups are likely related to cultural norms. This research shows that investigating differences among subgroups is important to provide a

better understanding of each group. Unfortunately, although it is possible to conceptually examine within-group differences, empirically it is not feasible. In addition, cross-cultural literature on alcohol use is not available on each of the nearly 200 ethnic groups.

A second factor contributing to the lack of research is a low enrollment rate of international students. According to the report by IIE (2003), until the 1992/93 academic year, the total number of international students enrolled in American institutions was less than 3%. In 1997/98 and 2002/03, the enrollment reached 3.6% and 4.6%, respectively. In addition, the presence of international students is regionally uneven. The state of California and the city of New York have the largest number of international students. Some institutions may have fewer international students or none at all. Interest in this population may not be shared on all American campuses.

Third, lower enrollment at the undergraduate level than in graduate school also contributes to the lack of research. Data on drinking among Americans consistently shows that the peak period is found in the 18-24 age group. White male undergraduate students constitute the major binge drinkers. Consequently, undergraduates have been the main research focus (O'Malley & Johnston, 2002), while the number of F-1 students enrolled in undergraduate programs is less than those in graduate school (IIE, 2003). As a result, their presence could be easily neglected. Further, less prevalent drinking patterns among American ethnic groups may contribute to failed research attempts at recognizing a need for studies of international students and alcohol use.

Finally, the perception among researchers that F-1 students are the same as ethnic minority students such as immigrant international college students (i.e., students who have U.S. permanent residency, or other visa types such as asylum) and American ethnic minority students

(i.e., students who have American citizenships) could be another contributor. Yoon and Portman (2004) argued that researchers tend to combine F-1 students with immigrant/American ethnic minority students when designing studies on multicultural counseling. However, as urged by Sodowsky and Plake (1992), areas of acculturation stress are different between sojourners (e.g., F-1 students) and immigrants/minorities (e.g., permanent U.S. residents and naturalized citizens) due to cognitive processes affected by a legal status, a reason for coming to the United States, lifestyles, and sociocultural factors, as well as a degree of adaptation to the American culture. Therefore, a study must view these two groups differently (Yoon & Portman, 2004). Further, in regard to cultural norms, Yoon and Portman also warned against methodologically mixing these two groups. According to these researchers, the cultural norms of each F-1 student subgroup have little in common with American racial/ethnic subgroups. A good demonstration for this argument was found within a study conducted by Izuno et al. (1992). According to these researchers, regardless of gender, Japanese in Japan drink more than Japanese-Americans in Hawaii and California. Similarly, Koreans in Korea consume more alcohol than Korean-Americans (Gong, Takeuchi, Agbayani-Siewert, & Tacata, 2003). These samples were not taken from college students. However, the influence of a social drinking norm cannot be ignored in research on F-1 students because they interconnect with their cultures.

Attributions such as legal status as a student and the degree of acculturation to the dominant American culture regarding such factors as language, values, behavioral patterns, and life styles, distinguish F-1 students from other international students and ethnic minority American students. A physical distance between the student and the immediate and extended family differs in these two groups. Social resources that are provided by U.S. local and federal governments are not available to F-1 students, who do not qualify for them due to their visa

status. Impacts of a new experience as foreigners, particularly as racial minorities for non-White students, are unique contributors further distinguishing this group from immigrant/American ethnic minority students. By lumping the F-1 group together with the immigrant/American ethnic subgroup, studies may fail to produce accurate and reliable conclusions.

Summary

A literature review on F-1 students was provided in this chapter. The major sources of acculturation stress for this group have been identified as English language barriers, academic performance, financial difficulties, perceived prejudice, racial/ethnic discrimination, a lack of socio-cultural references, culture shock and home sickness, social isolation and alienation, and a loss of social support. Empirical studies documented risky drinking behaviors among college populations, including community college students and F-1 students. Research focused solely upon F-1 students is suggested to avoid misleading our conception of both F-1 and American ethnic minority students.

CHAPTER FOUR

METHOD

For this study, the four-factor drinking motivation model developed by Cooper (1994) was applied to a group of international student attending English as a Second Language (ESL) programs at a U.S. community college. Participants, instrumentation, data collection procedure, research questions and hypotheses, and data analysis are described in this chapter.

Participants

The participants consisted of international students attending ESL programs at a community college in a Mid-Atlantic metropolitan area. This community college was chosen because it is one of the leading 2-year institutions hosting international students (IIE, 2003). The college has six campuses and one extended learning institute. It provides 77 majors and offers associate degrees in Arts (A.A.), Science (A.S.), Applied Arts (A.A.A.), and Applied Sciences (A.A.S.). In the 2002/03 academic year, 25,000 students were enrolled across the five campuses on a full time basis, and the unduplicated annual headcount (student is counted one time for academic year) was 62,000 (Office of Institutional Research [OIR], 2004). In the Fall of 2004, the enrollment of F-1 students reached over 1,300 across the five campus locations, ranging between 20 and 900 students at each site (S. Bennett, personal communication, October 29, 2004).

According to a coordinator of the International Services (S. Bennett, personal communication, October 29, 2004), the only academic requirement for admission to the community college for F-1 students is high school completion, which must be equivalent to the

12-year long U.S. high school education. Taking the Test of English as a Foreign Language (TOEFL) has not been required for admission, although this regulation will change in the fall of 2005. Upon arrival, F-1 students take an English placement test to determine whether they need to enroll in the English as a Second Language (ESL) program. The ESL program at the community college has eight levels, of which six levels (ESL Basic Entry, A, B, C, D, and E) are non-credit courses offered by the Continuing Education (CE) and credit hours are not counted toward any academic degrees. In contrast, two levels (ESL 006/012 and ESL 013/017) are transferable credits provided by the regular academic program. Students in the ESL program in the general academic program are allowed to take regular courses while enrolling in the ESL program. The English proficiency levels of these classes range in difficulty from basic (ESL Basic Entry, and ESL A and B), to intermediate (ESL C, D, and E), and advanced (ESL 006/012 and 013/017). To advance from the non-credit ESL program to that of the regular academic program, students must pass a standardized English language placement test and compose a written essay. Many F-1 students at the community college begin at non-credit levels (S. Bennett, personal communication, October 29, 2004). For this study, participants were recruited from intermediate (ESL C, D, and E) and advanced (ESL 006/012 and 007/013) levels to ensure that the questionnaires are understood.

Instrumentation

Index of Life Stress (ILS)

Acculturation stress was explored by the ILS (Yang & Clum, 1994) (see Appendix A). ILS was selected because it was developed to examine acculturation stress among F-1 students; non-F-1 students were not included from the sample used to develop the scale. ILS is a 31-item

questionnaire examining the stressful cultural adjustment that F-1 students undergo. Subscales for these five dimensions have 5 to 8 items. Participants selected answers that most frequently described their experience. The five dimensions of acculturation stressors are: (a) financial concerns (e.g., "My financial situation influences my academic study," "My financial situation makes my life here very hard"); (b) language difficulty (e.g., "I can't express myself well in English," "My English makes it hard for me to understand lectures"); (c) perceived discrimination (e.g., "I can feel racial discrimination toward me in restaurants," "I can feel racial discrimination toward me from other students"); (d) cultural adjustments (e.g., "I don't like the activities people choose to entertain themselves," "I don't like the religions in the USA"); and (e) academic pressure (e.g., "I worry about my academic performance," "I'm not doing as good as I want to in school"). Each item has 4-point scaling options ranging from 0 (*never*) to 3 (*often*). The total score ranges from 0 to 91. The internal consistency estimates (Kuder-Richardson [KR]-20) for the five factors were good (.80 in financial concern, .79 in language difficulty, .82 in racial discrimination, .70 in cultural adjustment, and .75 in academic adjustment). Yang and Clum reported that a test-retest reliability with a one month interval was .87 (N = 20) and that the five factors explained 52% of the variance in a factor analysis. The five dimensions of ILS were identified by factor analysis, with principle component extraction and varimax rotation. The cutoff criterion to determine factor items was set at a factor loading level of .40. Construct validity of ILS was assessed by factor analyses.

ILS was originally developed for F-1 students from Asia. However, according to Misra et al. (2003), it demonstrated satisfactory psychometric properties for a sample of F-1 students including both Asian and non-Asian students. In the study by Misra et al., coefficient alpha of the ILS ranged from .71 to .88 (see Table 4.1). Therefore, this instrument appropriately captured

the essence of this study.

Revised Drinking Motivation Questionnaire (DMQ-R)

Drinking motivations were measured by DMQ-R (Cooper, 1994) (see Appendix B). The instrument consists of 20 items, designed to assess the four dimensions that each contain five items of drinking motives. The four motives and sample items are: (a) Social motives (e.g., "Because it improves parties and celebrations," "Because it makes social gatherings more fun"); (b) Enhancement motives (e.g., "Because it gives you a pleasant feeling," "Because you like the feeling"); (c) Coping motives (e.g., "To forget about your problems," "Because it helps you when you feel depressed or nervous"); and (d) Conformity motives (e.g., "To be liked," "So you won't feel left out"). A response to each item is on a 5-point scale, where 1 = *almost never/ never*, 2 = *some of the time*, 3 = *half of the time*, 4 = *most of the time*, and 5 = *almost always/always*. Participants are asked to answer each of the statements by circling the one number that most closely represents their own personal experiences with drinking alcohol. The total score ranges between 20-100 points. As shown in Table 4.1, the psychometric properties of DMQ-R are excellent, with internal consistency reliability scores ranging from .84 to .92 for three of the subscales. The reliability scores of Conformity motives (.72 - .82) were lower than the other three subscales.

Core Alcohol and Drug Survey (CADS) Community College Form

Quantity, frequency, negative consequences, and locations of alcohol consumption were measured by the CADS community college long form (Core Institute, 2004). Although the original instrument had 39 multi-item questions, the Core Institute granted permission to modify the original form for this study (CADS community college short form) (G. Vineyard, personal communication, February 12, 2005) (see Appendix C). The CADS community college long form

is the same as the CADS long form, which was developed for students in 4-year institutions. The only differences between these forms are on Questions 1, 6, 8, 13, 24, 28, and 31. Differences are: (a) Question 1: The CADS long form allows students to choose from seven options including "*Freshman*," "*Sophomore*," or "*Grad/professional*," whereas the CADS community college long form has four alternative choices including "*Freshman less than 30 hrs*," "*Sophomores 30 or more hrs*," "*Adult Education*," and "*Other*"; (b) Question 6: While the item of the CADS long form asks whether the current residence of the respondent is "*On-campus*" or "*Off-campus*", the CADS community college long form asks whether the respondent is concurrently enrolled in a 4 year school; (c) Question 8: Five options are given in the CADS long form for living arrangements: "*House/apartment/etc*," "*Residence hall*," "*Approved housing*," "*Fraternity or sorority*," or "*Other*". In the CADS community college long form, the respondent chooses among the following three choices: "*House/apartment/etc*," "*Contracted housing*," and "*Other*"; (d) Question 13: The residential options provided by the CADS long form are "*In-state*," "*USA, but out of state*," and "*Country other than USA*," whereas those of CADS community college long form are "*In state & in district*," "*In state & out of district*," and "*Out of state or country*"; (e) Question 24: the CADS long form has one additional answering option, "*Social fraternities or sororities*"; (f) Question 28: The CADS long form has two additional answering options, "*Fraternities*" and "*Sororities*"; and (g) Question 31: The CADS long form asks about housing preferences, whereas the CADS community college long form asks "*What was your primary educational intent?*"

A level and location of alcohol use. Quantity of alcohol consumption was determined from two items of the CADS community college long form. Question 14 asks, "Think back over the last two weeks. How many times have you had five or more drinks at a sitting?" Response

options are: (a) *none*, (b) *once*, (c) *twice*, (d) *3 to 5 times*, (e) *6 to 9 times*, and (f) *10 or more times*. A drink was described as a bottle of beer, a glass of wine, a wine cooler, a shot glass of liquor, or a mixed drink. Question 15 asked for the average number of drinks the respondent consumed per week.

Frequency of alcohol use was investigated by two questions from the CADS community college long form: Question 17 (i.e., "Within the last year about how often have you used alcohol?") and Question 18 (i.e., "During the past 30 days on how many days did you have alcohol?"). Question 17 required respondents to select from nine options: (a) *did not use*, (b) *once/year*, (c) *6 times/year*, (d) *once/month*, (e) *twice/month*, (f) *once/week*, (g) *3 times/week*, (h) *5 times/week*, and (i) *every day*. Question 18 required respondents to choose from seven options: (a) *0 days*, (b) *1-2 days*, (c) *3-5 days*, (d) *6-9 days*, (e) *10-19 days*, (f) *20-29 days*, and (g) *all 30 days*.

Locations of alcohol use were ascertained in Question 20 from the CADS community college long form. This question asked "Where have you used alcohol…" followed by a list of nine options: (a) *Never used*, (b) *On campus events*, (c) *Residence hall*, (d) *Frat/sorority*, (e) *Bar/restaurant*, (f) *Where you live*, (g) *In a car*, (h) *Private parties*, and (i) *Other*.

Alcohol-related negative consequences. Question 21 listed 19 alcohol-related negative consequences. Respondents were asked how often they had experienced each consequence in the last year. The answers were: (a) *Had a hangover*, (b) *Performed poorly on a test or important project*, (c) *Been in trouble with police, residence hall, or other authorities*, (d) *Damaged property, pulled fire alarm, etc*, (e) *Got into an argument or fight*, (f) *Got nausea or vomited*, (g) *Driven a car while under the influence,* (h) *Missed a class*, (i) *Been criticized by someone I know*, (j) *Thought I might have a drinking or other drug problem*, (k) *Had a memory loss*, (l)

Done something I later regretted, (m) *Been arrested for DWI/DUI*, (n) *Have been taken advantage of sexually*, (o) *Have taken advantage of another sexually*, (p) *Tried unsuccessfully to stop using*, (q) *Seriously thought about suicide*, (r) *Seriously tried to commit suicide*, and (s) *Been hurt or injured*. For each of these 19 items, respondents chose one of the six options, (a) *never*, (b) *once*, (c) *twice*, (d) *3-5 times*, (f) *6-9 times*, or (g) *10 or more times*. According to Presley et al. (1993), Cronbach alpha reliabilities for these 19 items ranged from .25 to .76 (See Table 4.1). The interval period of these tests was not available.

Demographic and additional items. In the reformed CADS community college long form, a set of demographic questions and other relevant items were broached. These demographic items were: (a) gender, (b) age, (c) marital status, (d) living arrangement, and (e) educational intention. The other items were: (a) perception of campus environment, (b) perception of alcohol effects, (c) secondary effects of alcohol use (negative consequences on others), (d) change in drinking patterns within the last 12 months, and (e) the presence of familial alcoholism.

Table 4.1 shows items and scale reliabilities for DMQ-R, ILS, and the CADS long form. The reliabilities of each scale are indicated both from the original study and other studies found in the literature.

Table 4.1
Number of Items and Scale Reliabilities for 3 Published Instruments

Instruments	Scales (Measures)	# of Variables	Reliability			
			(a)			
Drinking Motivation Questionnaire **(DMQ-R)**	Social Motives	5	.85	.92	.90	.91
	Enhancement Motives	5	.88	.84	.89	.88
	Coping Motives	5	.84	.90	.84	.91
	Conformity Motives	5	.85	.81	.76	.72
			(b)	(c)		
Index of Life Stress **(ILS)**	Language Difficulty	5	.79			
	Cultural Adjustment	8	.70			
	Academic Pressure	5	.75			
	Racial Discrimination	6	.82	.71 - .88		
	Financial Concern	6	.80			
			(d)			
Core Alcohol And Drug Survey (CADS) Long Form	Quantity of Alcohol Use	2	N/A			
	Frequency of Alcohol Use	2	N/A			
	Location of Alcohol Use	8	N/A			
	Negative Consequences	19	.25 - .76			

(a) from Cooper (1994), MacLean & Lecci (2000), Martens et al. (2003a), and Simons, Correia, & Carey (2000), respectively.

(b) from Yang & Clum (1995).

(c) from Misra et al. (2003).

(d) from Presley et al. (1993).

Demographic Information Sheet

In addition to demographic items from CADS community college long form, 14 more items were asked. These items were: (a) visa type, (b) ESL level, (c) the highest academic degree obtained in their country of origin, (d) length of stay in the U.S., (e) drinking companions, (f) place where father lived, (g) place where mother lived, (h) place where their best friend lived, (i) whether or not they had a confidant to discuss stressful situations, (j) frequency of contact with confidant, (k) source of financial resources, (l) geographical region within their country of origin, (m) country of origin, and (n) ethnic origin (see Appendix D).

In this study, countries of origin were classified by the following geographical regions: (a) Europe, (b) Africa, (c) Middle East, (d) Asia, (e) Oceania, (f) North America, (g) Central America, and (h) South America. Furthermore, these geographical regions were categorized into two cultural orientations: individualistic cultures and collectivistic cultures. The former included Europe, North America, and Oceania, whereas the latter referred to Africa, Middle East, Asia, Central America, and South America (Triandis, 1994).

Data Collection Procedure

The survey was distributed between March 16 and April 1, and collected between March 23 and April 18. Prior to the survey, the researcher contacted the community college vice president of Academic and Student Services, who directs the Office of Institutional Research (OIR), to explain the nature of the study and submit the necessary documents (i.e., survey instruments). Upon approval from the Institutional Review Board of Human Subjects (IRB) at the community college and support from the international student services, the researcher wrote letters to ESL coordinators at the four campuses to solicit their assistance. Coordinators of both

non-credit and credit ESL program at one campus site agreed to conduct the survey. All students that were 18 or older were asked to participate in the survey. Voluntary participation and anonymity ensured participation levels. Each survey packet contained: (a) a cover letter (see Appendix E), (b) an informed consent form (see Appendix F), (c) ILS (Yang & Clum, 1995) (see Appendix A), (d) DMQ-Q (Cooper, 1994) (see Appendix B), (e) CADS community college short form (Core Institute, 2004) (see Appendix C), and (f) Demographic Information Sheet (see Appendix D).

Prior to the actual study, the survey instruments were tested among a small group of F-1 students to examine comprehension levels, which proved to be affirmative. The researcher visited 11 non-credit ESL classes to explain the research significance and solicit participation. In these classes, each instructor reviewed the instruments with a list of the vocabulary provided by the researcher (see Appendix G). Participates who agreed to take part in the study took a survey packet home to complete it. A week later, the researcher revisited the classrooms to collect questionnaires, which were individually sealed in an envelope. Meanwhile, the researcher did not visit the credit ESL classrooms, as the coordinator of the credit ESL program asked that instructors distribute the surveys themselves, for students to answer either in class or at home. Each answered questionnaire was sealed in an envelope by the participant, collected with informed consent forms by the instructors, and placed in a safe box located in the ESL coordinator's office. Overall, the students in both groups spent approximately 30 - 60 minutes completing the questionnaire. The data were entered into the computer using Excel and Statistics Package for Social Science (SPSS) with version 13.

Research Questions and Hypotheses

Six research questions emerged. Eight hypotheses were proposed to describe the relationship among the variables.

1. How much acculturation stress do F-1 students attending community college experience?
2. How much, how often, where, and with whom do F-1 students attending community college use alcohol?
3. What alcohol-related negative consequences do F-1 students attending a community college experience from drinking?
4. To what motivational factors do F-1 students attending community college attribute their drinking behavior?
5. To what extent are there interrelationships among alcohol use, acculturation stress, drinking motivations, and alcohol-related negative consequences?

   Specifically, the following hypotheses were proposed.

   a. Coping motives would be more strongly associated with acculturation stress (Hypothesis 1).
   b. Enhancement motives would be most strongly associated with higher levels of alcohol use than Social, Coping, and Conformity motives (Hypothesis 2).
   c. Coping motives would be more strongly associated with alcohol-related negative consequences than Enhancement, Social motives, Conformity motives (Hypothesis 3).
6. To what extent are there between-group differences in gender, age, and cultural orientations represented by geographical regions, regarding alcohol use, acculturation stress, and drinking motivations?

Specifically, the following hypotheses were proposed.

a. Males would score higher in levels of alcohol use, acculturation stress, and each motive of drinking than females (Hypothesis 4).
b. Regardless of gender, students in the 18-22 age bracket would score higher in levels of alcohol use than those in the older age group (Hypothesis 5).
c. Students from Asia would score highest in Conformity motives (Hypothesis 6).
d. Students from collectivistic cultures would score higher in Coping motives than those from individualistic cultures (Hypothesis 7).
e. Students from individualistic cultures would score higher in Enhancement motives and lower in Social motives over those from collectivistic cultures (Hypothesis 8).

Data Analysis

Determination of Sample Size

Estimated sample size needed (n^*) for a 95% confidence interval for proportion summary statistics was determined by the formula for a finite population: $n = 1/\{(E^2/.9604) + (1/N)\}$ (Rea & Parker, 1997). Based on this formula, in the present study, n^* for the population of 1300 non-immigrant international students at the community college is: $1/\{.0026 + (1/1300)\} = 296.80$. To obtain good confidence intervals, approximately 300 participants were necessary. This number is adequate for correlational analyses as well.

Analyses for Research Questions and Hypotheses

Statistical analysis techniques, which sought to answer the research questions and hypotheses were explained below:

1. Descriptive statistics as well as *t*-tests, ANOVA, and chi-square analyses were used to describe the data and explore relationships. These included means and standard deviations for scale scores and medians, mode, and frequencies for categorical responses.
2. Reliabilities for scale scores were determined by using Cronbach's alpha coefficient.
3. Relationships between variables of interest was established using:
    a. Pearson *r* for scale scores and other metric data.
    b. Spearman rho for categorical variables.
4. Based on these results and questions of interest, multiple regression analyses were used to explore different motivations for drinking.
5. Multivariate analysis of variance (MANOVA) was used to examine mean differences in drinking motives across groups by gender, geographical regions, and cultural orientations, as well as a level and frequency of alcohol use.
6. If MANOVA found statistically significant effects, analysis of variance (ANOVA) was utilized to determine which specific variables produced the group differences.

Summary

The sample used for this study was recruited from international students enrolled in two ESL programs at a community college. This institution was selected because it has a relatively large population of students who match the demographic criteria in this study. To obtain good confidence intervals, 300 participants were needed. In addition to a demographic questionnaire, three different instruments were used. These scales were: (a) Index of Life Stress (ILS); (b) Revised Drinking Motivation Questionnaire (DMQ-R); and (c) Core Alcohol and Drug Survey (CADS) community college short form. Except CADS, Cronbach's alpha coefficients of each

scale ranged from high to moderate reliabilities. With instructor approval, data was collected from intermediate and advanced levels of ESL classes. Six research questions and eight hypotheses were proposed. To answer these questions and hypotheses, techniques of statistical analyses including descriptive statistics, *t*-tests, chi-square, Pearson *r*, Spearman rho, multiple regression, MANOVA, and ANOVA were used.

CHAPTER FIVE

RESULTS

The results of analyses conducted on the data collected from international students in English as a second language (ESL) classes are presented in this chapter. The participants, including the response rate, international student status, and the demographic profiles of the participants, are described in the first section. The second section contains findings specific to each research question and hypothesis obtained from descriptive and inferential analyses, including univariate, bivariate, and multivariate analyses. The overall goal of these analyses was to describe and explore relationship among the following variables: acculturation stress, levels of alcohol use and consumption, and motivation for drinking with regard to international students in the United States on an F-1 visa. The Statistics Package for Social Science (SPSS, Version 13) was used for these analyses.

Participants

Response Rate

Of 472 international community college students enrolled in the ESL programs of one campus of the community college systems in a Mid-Atlantic metropolitan area who were invited to participate in this study, 279 actually participated. For the purpose of determining response rate, these participants were divided into two groups. In one group, the researcher initially visited their classrooms to introduce herself and the study, and later revisited them to collect answered questionnaires, which were individually sealed in an envelope along with separate informed consent forms. In contrast, the researcher did not visit the classrooms of the other group, where

the instructors either conducted the survey in their classroom settings or asked the students to respond at home. These instructors then collected the answered questionnaires in individually sealed in an envelope. Informed consent forms were also collected by the instructors separately from the answered questionnaires. The response rates of the visited group was 67% (115 of 172), whereas that of the not-visited group was 55% (164 of 300). The overall response rate was 59%. Ten responses were invalid due to a failure to complete the questionnaire. As a result, the data that were used in the statistical analyses for this study consisted of 269 responses.

International College Student Status

The main focus of this study was F-1 students. However, the data collection included all international students in the ESL classes. As shown in Table 5.1 and Figure 5.1, among the total of 269 participants, 262 indicated their visa types. Of these 262 respondents, 47% had student visas, whereas 42% had either permanent residency or U.S. citizenship. Twenty two participants (8%) reported their visa types as "*Other*". These visa types were specified as asylees, employees, or dependents of valid visa holders. Among those who marked "*Other*", one student described his visa as a J-1. Because the J-1 visas are issued to exchange students/researchers and are not for immigrants, this J-1 student was processed together with the F-1 students and included in the F-1 group of 126 students. It is unclear whether there were more J-1 students among those marked "*Other*" or those who did not answer this question. Seven respondents did not identify their visa types, and these were included in the non-F-1 group. Further analyses will be based on the total group of international students and comparisons made between the F-1 and the non-F-1 visa groups. It may be assumed that the non-F-1 group is immigrants, but that was not clearly determined.

Table 5.1
Visa Status

Visa	Total (N = 269)		F-1 (N = 126)		Non-F-1 (N = 136)	
	N	%	*N*	%	*N*	%
F-1	126	46.8	126	100.0	0	0.0
Permanent residency	89	33.1	0	0.0	89	65.4
U.S. citizen	25	9.3	0	0.0	25	18.4
Other	22	8.2	0	0.0	22	16.2
Missing data	7	2.6	0	0.0	7	5.1

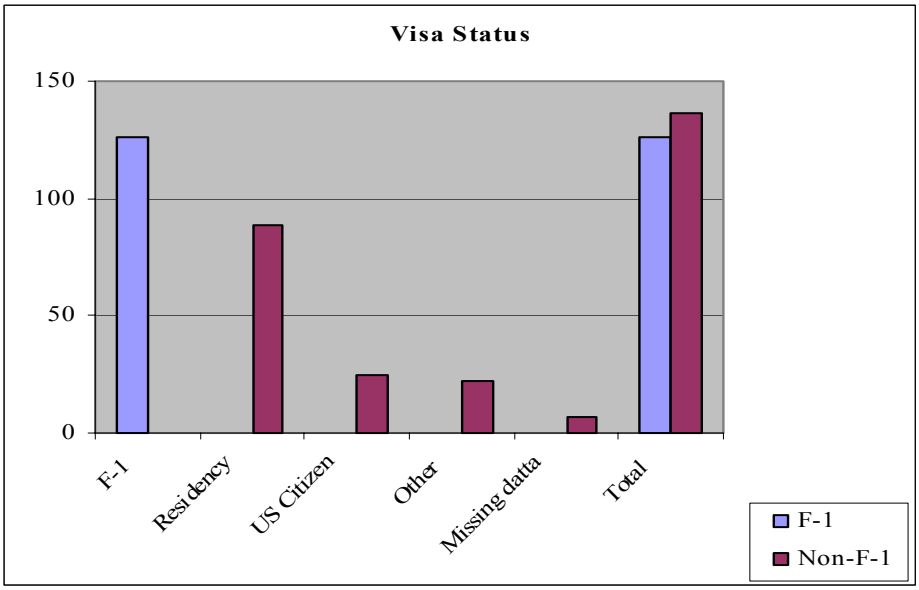

Figure 5.1. **Visa Status.**

Demographic Profiles

Table 5.2, contains the demographic profiles of the total participants as well as the F-1 and the non-F-1 groups, separately.

ESL class. Overall, the respondents were almost evenly split between two levels of ESL classes. However, 74% of the F-1 students were in the lower (intermediate) level, while 88% of the non-F-1 students were in the upper (advanced) classes.

Time in the United States. Although the length of time living in the United States ranged from 2 months to 40 years, 78% of the respondents have been in the United States no more than 5 years. The mean of the stay in the United States was 3.6 years; the median was 2.2 years, and the mode was 4 years. The length of time living in the United States for the F-1 group ranged from 2 months to 5 years. Most (88%) of the F-1 students have been in the United States for 3 years or less. The mean and the mode of this group were 1.7 years and 10 months, respectively. In contrast, the range of living in the United States for the non-F-1 group was from 3 months to 40 years. The mean of this group was 5.6 years, while the mode was 4 years. A *t*-test indicated that the F-1 students have been in the United States a statistically significant less number of years than non-F-1 students (1.5 versus 5.5 years; $t = 8.2$, $p < .001$).

Legal residency. The participants were from 47 countries (see Appendix H). Among these countries, the Republic of Korea (Korea) (31%) was the most frequently represented. The second leading country was Vietnam (7%) followed by Thailand (4%). These findings differed from a national study conducted among 97,000 international students attending the U.S. community colleges (Koh, 2004). In the national study, Japan (16%) led other countries, followed by Korea (8%), China (4%), Mexico (4%), and Taiwan (4%). Regarding the F-1 group in the current study, Korea (55%) dominated over other countries. Thailand (6%) and France (3%) were placed next to Korea. In contrast, among the non-F-1 students, Vietnam (12%) was the leading country followed by Korea (11%) and Bolivia (6%).

Regions of origin. Asia (60%) led the region of origin among the total participants. It was followed by South America (14%), Africa (8%), Middle East (6%), Europe (5%), and Central America (5%). Oceania was least represented (less than 1%). For the purpose of analyses in this study, Central America and South America were combined (Latin America) and constituted the second largest regional group (19%). These findings are consistent with the national reports (Koh, 2004). Regarding the current study, while Asia (78%) dominated in the F-1 group, more diverse regions were reported from the non-F-1 group. Less than half of the non-F-1 students came from Asia (43%).

Ethnic origin. Participants were asked to write-in their ethnic origin. Fifty seven categories were identified in this study (see Appendix I). In most cases, participants affiliated themselves with their country of origin. Almost one out of three participants identified themselves as Korean (31%). The second largest ethnic group was Vietnamese (8%) followed by Chinese (4%). Of the 16% from Latin America, fewer than half identified themselves as Hispanic, Spanish, or Latino. The rest identified their ethnic origin by their country of origin. In the breakdown, the F-1 group represented 31 ethnic origins. Reflected by the salient size of the legal residency, the largest ethnic group was Korean (55%). The second largest group was Vietnamese (5%) followed by Chinese (3%) as well as Chinese-Thais (3%). Regarding the non-F-1 group, 42 ethnic origins were identified. This group was ethnically more diverse than the other group; Vietnamese (12%) and Korean (11%) were two of the largest ethnic groups followed by Hispanics (7%). The breakdown of the "Hispanic" identity was not described.

Gender. Slightly more than half of the participants were females (54%). This was true in both the F-1 (52%) and the non-F-1 (55%) groups.

Age. The age of the total respondents ranged from 18 to 50. The mean age of the group was 26.1 and so were the F-1 (26.1) and non-F-1 groups (26.2). As a whole group, the median and the mode ages were 25 and 21, respectively. Half of the F-1 group fell into the age group of 21-25. There was no salient age group among the other international students. The non-F-1 group had more students between 18-20 years old (27%) than the F-1 group (9%). A *t*-test indicated that there was no statistically significant age difference between these groups ($t = -.116$, $p = .908$).

Marital status. Over 70% of the participants identified themselves as single. A quarter of the respondents indicated that they were married. The F-1 group was predominantly single (87%), while one in three of the non-F-1 group was married (36%).

Education level. A high school degree was attained in the home country by 42% of the respondents. Ten percent had an associate degree, 31% had a bachelor's degree, and 6% had graduate degrees. Eight percent of the respondents answered "*Other,*" specifying that they went to elementary schools or middle schools in their home countries. Prior to arriving in the United States, more than half of the F-1 group but less than one-quarter of the non-F-1 group had a bachelor or higher degree.

Living arrangement. Only 5% of the participants lived alone. The rest of the respondents lived with "*parent(s)*" (32%), "*spouse*" (21%), "*roommate(s)*" (16%), "*children*" (15%), and/or "*others*" (22%). "*Other*" was mostly specified as relatives, including sibling, cousin, aunt, and uncle. Of 126 F-1 students, 8% reported that they lived alone. Fifteen percent of the F-1 students lived with their parents. In contrast, nearly half of the non-F-1 students lived with the parents (46%). One third of the non-F-1 group lived with their spouse (32%). Twenty percent of this group indicated that they lived with children.

Place where parents live. Respondents were asked to indicate where their father and mother lived in two separate items, with results shown in Table 5.2. A cross-tabulation of these two items showed that more than a half of the whole group had parents who lived in their home country (55%), 23% lived with or lived near their parents, while 7% lived with one parent. For the majority of the F-1 students, both their parents lived in their home country (80%). Only 6% of the F-1 students lived with both parents in the United Sates. Less than 4% of the F-1 group lived with or lived near their mothers but not fathers. There was no F-1 student who either lived with or lived near their fathers. Regarding the non-F-1 students, one third of these students had both parents who lived in their home country (34%), while another third of this group lived with both their parents. Five percent of the non-F-1 group lived with their mothers, but not with their fathers.

Financial resources. Among all the participants, personal and family funding were the dominant financial resources (89%). This finding was slightly higher than that of the national study about the international students attending the U.S. community colleges (81%) (IIE, 2004). Financial resources that were other than personal or family savings/income were specified as employers, scholarship, or student loans (6%). In the breakdown, 69% of the F-1 students were funded by family, while only slightly more than one-third of the non-F-1 students (39%) were supported by their family. The financial resources for these groups differed in a statistically significant way (χ^2 (2) = 24.47, $p < .001$).

Table 5.2
Demographic Profiles

Variable	Category	Total [a] (*N* = 269)	F-1 (*N* = 126)	Non-F-1 (*N* = 136)
		%	%	%
ESL Class	Intermediate	39.7	73.8	10.3
	Advanced	56.5	22.6	88.3
Time in U.S.	<1 year	20.8	39.7	4.4
	≥1 – 3 years	37.3	48.4	28.7
	>3 – 5 years	19.7	10.3	28.7
	>5 – 10 years	11.9	0.0	23.5
	>10	4.5	0.0	8.8
Legal Residency [b]	Korea	31.2	54.8	11.0
	Vietnam	7.1	2.4	11.8
	Thailand	3.7	5.6	2.2
Region of Origin	Asia	59.9	77.8	43.3
	Latin America	18.6	11.1	25.7
	Africa	7.8	3.2	12.5
	Middle East	5.6	1.6	9.6
	Europe	5.2	5.6	5.1
	Oceania	.4	.8	-
Ethnic Origin [c]	Korean	31.2	54.8	11.0
	Vietnamese	8.2	4.8	11.0
	Chinese	3.7	3.2	4.4
Gender	Male	45.4	47.6	44.1
	Female	54.3	52.4	55.1
Age	18-20	18.2	8.7	27.2
	21-25	40.1	50.0	30.1
	26-35	26.4	31.7	21.3
	36+	10.8	7.9	14.0
Marital Status	Single	72.9	86.5	60.3
	Married	24.5	11.9	36.0
	Separated	2.2	1.6	2.9
Education Level	High school	42.4	38.1	47.8
	Associate	10.0	7.1	13.2
	Bachelor	30.9	45.2	19.1
	Master's	5.6	7.1	4.4
	Doctorate	.7	1.6	.0
	Other	7.8	.8	14.7

(*table continues*)

Table 5.2 (*continued*)

Variable	Category	Total [a] (*N*=269)	F-1 (*N*=126)	Non-F-1 (*N*=136)
		%	%	%
Living Arrangement [d]	With roommate(s)	16.4	28.6	5.1
	Alone	5.2	7.9	2.9
	With parent(s)	32.0	15.1	46.3
	With spouse	21.2	10.3	31.6
	With children	14.9	9.5	19.9
	Other	22.3	35.7	9.6
Place Father Lives	U.S. with/near	27.1	7.1	47.1
	U.S. far away	3.0	.8	5.1
	Home country	61.0	88.1	38.2
	Other	4.8	3.2	6.6
	N/A	1.9	.8	2.9
Place Mother Lives	U.S. with/near	31.2	11.1	50.7
	U.S. far away	3.0	.0	5.9
	Home country	58.4	82.5	39.0
	Other	2.6	3.2	2.2
	N/A	.7	.8	.7
Financial Resources	Personal savings/income	36.4	23.0	50.7
	Family savings/income	52.4	69.0	39.0
	Other	6.3	6.3	6.6

a Seven respondents included in Total column with unknown visa types. Total percentages do not add to 100% due to missing data in each category.

b Top 3 countries listed. See Appendix H for complete list.

c Top 3 ethnic origins listed. See Appendix I for complete list.

d The item allowed for multiple responses.

Acculturation Stress of International Students

Research question 1 addressed how much acculturation stress F-1 students attending community colleges felt. As shown in Table 5.3, among five stressors based on the Index of Life Stress (ILS) (see Appendix A) subscales, academic pressure (M = 1.76; SD = .53) was the strongest stressor for the average participant, followed by financial concerns (M = 1.56; SD = .70) and language difficulties (M = 1.53; SD = .63). Cultural adjustment (M = 1.10; SD = .46) and perceived discrimination (M = 1.00; SD = .56) were the least stressful. Each mean of these

subscale scores were less than that of ILS subscale scores in the study by Misra et at. (2003) (see Table 5.3). The scores of the study by Misra et al. were obtained in two Midwestern institutions from 143 international students in undergraduate and graduate programs, who were predominantly from Africa, Asia, and Middle East (each proportion of these students was not provided).

Using a multivariate analysis of variance (MANOVA) to compare the F-1 and non-F-1 students on these five subscales, there was a statistically significant difference between the two groups (Hotelling's $T = 14.2$, $p < .001$). Univariate ANOVAs following the MANOVA indicated that there was no difference between the groups in terms of academic pressure. On a scale of 0 to 3, the respondents scored an average of 1.8, indicating moderate academic pressure. Group membership (F-1 vs. non-F-1) explained 8% of the variance in cultural adjustment scores, but explained only 4% of the variance in the other stress scores. In all four cases, the F-1 students showed slightly higher average stress scores than the non-F-1 group. However, these scores tended to be low to moderate. Financial concerns and language difficulties produced the most stress, while cultural adjustment and perceived discrimination produced the least stress. The group differences are evident from Figure 5.2, which also shows the somewhat lower stress scores for their participants than for those in the study by Misra et al.

Additionally, gender difference in acculturation stress was investigated by MANOVA for all respondents as well as F-1 and non-F-1 students. No value of Hotelling's Trace indicated gender difference in any of the three analyses: All students (Hotelling's $T = .01$, $F = .553$, $p = .74$); F-1 students (Hotelling's $T = .07$, $F = 1.66$, $p = .15$); and non-F-1 students (Hotelling's $T = .03$, $F = .87$, $p = .50$).

Table 5.3
Acculturation Stress Levels Based on Index of Life Stress Subscales (ILS)

ILS Subscale [a]		Academic pressure		Financial concerns		Language difficulty		Cultural adjustments		Perceived discrimination	
	N	*M*	*SD*	*M*	*SD*	*M*	*SD*	*M*	*SD*	*M*	*SD*
Misra et al.[b]	143	2.19	.82	2.00	.97	1.76	.98	1.60	.72	1.18	.59
Current Study											
Total	268	1.76	.53	1.56	.70	1.53	.63	1.10	.46	1.00	.56
Female	146	1.75	.52	1.59	.73	1.52	.64	1.12	.48	1.01	.57
Male	122	1.76	.54	1.51	.64	1.55	.62	1.06	.45	.97	.53
F-1 students	126	1.76	.49	1.69	.65	1.67	.55	1.24	.43	1.12	.55
Female	66	1.76	.50	1.81	.64	1.65	.58	1.29	.47	1.10	.58
Male	60	1.77	.48	1.56	.64	1.69	.52	1.18	.38	1.14	.51
Non-F-1 students	135	1.75	.57	1.42	.72	1.41	.69	.98	.47	.89	.56
Female	75	1.72	.54	1.36	.76	1.41	.69	.98	.46	.93	.56
Male	60	1.77	.60	1.48	.66	1.42	.69	.95	.47	.82	.51
Total (F-1 vs. non-F-1) ***F*** [c]		.02		9.96		11.02		21.99		10.93	
p		.90		.00		.00		< .001		.00	
ES [d]		.00		.04		.04		.08		.04	

[a] Subscale scores range 1 to 5, where higher scores indicate greater motivation for drinking. The original items were coded 1 = "*almost never/never"* to 5 = "*always/almost always"*.
[b] From Misra et al. (2003).
[c] Univariate *F*-tests following a multivariate Hotelling *T*-tests.
[d] Effect size.

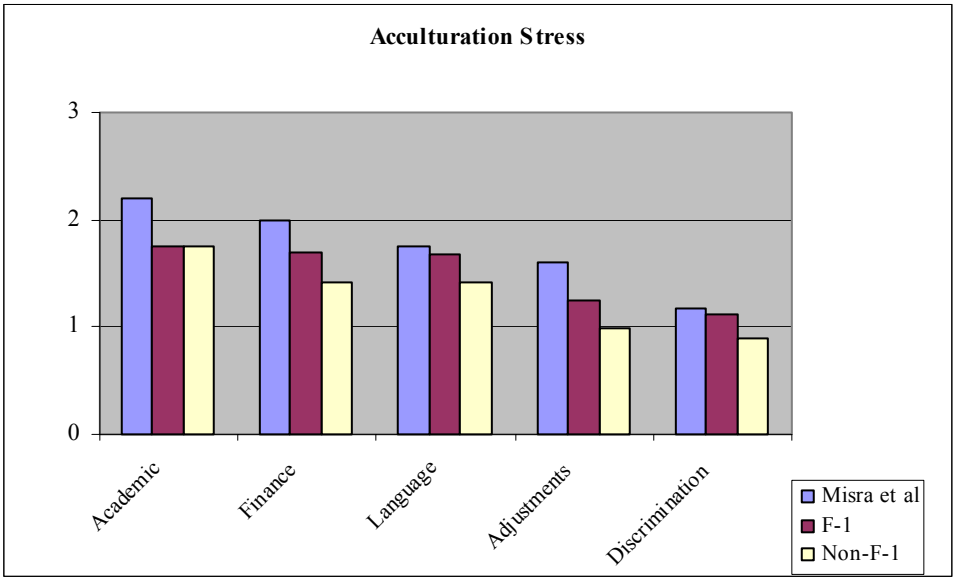

Figure 5.2 **Acculturation stress Levels Based on Index of Life Stress Subscales.**

Alcohol Use

Research question 2 asked how much, how often, where, and with whom F-1 students attending a community college used alcohol. To investigate, question items were selected from the altered Core Alcohol and Drug Survey (CADS) community college form (See Appendix C) and the researcher compiled demographic sheet (See Appendix D). It is important to report that, regardless of the international student status, inconsistent responses to the questions on the level and frequency of alcohol use were observed. A cross-tabulation analysis across three questions (average drinks per week and the number of the drinks in the past year as well as past 30 days) indicated that a number of respondents were not consistent in their responses about non-drinking behavior. These inconsistencies are problematic in interpreting the findings. The number of the respondents who consistently reported no indication of alcohol use was: all students, 64 (28%); the F-1 students, 18 (14%); and non-F-1 students 44 (32%). Because there is no way to reconcile inconsistencies across the different items, the following summaries are based on responses to individual items.

Level and Frequency of Alcohol Use

Heavy episodic drinking. Table 5.4 and Figure 5.3 list the frequency of binge drink in the last two weeks. Overall, one third of the international students in this study had one or more heavy episodic alcohol use in the 2 weeks prior to the survey (35%). In the national study, 41% of the participants in 2-year institutions engaged in binge drink (Presley et al., 2004). Regarding the current study, the F-1 group (42%) in comparison to the non-F-1 group (29%) had one or more episodes of binge drinking. Yet no statistically significant difference in the average number of heavy episodic drinking was found in these two groups ($t = 1.44$, $p = .15$).

Weekly consumption. The average number of drinks consumed per week is also listed in Table 5.4 and Figure 5.3. The international students in the current study consumed less than 2 drinks per week on average, while the 2 year college students in the national study used 5 drinks per week (Presley et al., 2004). The group in the national study consumed more than twice the number of drinks than the group of this study did. The F-1 students tended to have more drinks than the non-F-1 students did. But, a *t*-test found the group difference not statistically significant ($t = .74$, $p = .46$).

Annual consumption. Table 5.4 and Figure 5.3 list the frequency of alcohol use for international students in the past 12 months and the past 30 days. Overall, 70% of the students consumed alcohol at least once or more than once in the past year. This percent was less than that of a national study conducted on college students in both 2-year (80%) and 4-year institutions (85%) (Presley et al., 2004). The number of participants in the national study was 9,808 for the 2-year institutions and 130,061 for the other. International students comprised 2% of the 2-year college students in that national study; visa types of those students were not identified. In the current study, the largest proportions of international students used alcohol once a week (18%), followed by 6 times in the past year (13%). This pattern was similar to the national study (Presley et al., 2004), where 19% of the students used alcohol once a week in the past year, while 13% of them consumed alcohol 6 times per year. In the breakdown of the current study, while 84% of the F-1 students used alcohol in the past year, only 57% of the non-F-1 students did so. A chi-square analysis indicated that the annual level of alcohol consumption of the F-1 students was statistically significantly higher than that of the other international students (χ^2 (9) = 31.16, $p < .001$).

A cross-tabulation analysis indicated that, of the 56 respondents who had been in the Unites States less than one year, 75% reported that they used alcohol. Of those who consumed alcohol, only 12% used alcohol once and 13% did so 6 times in the 12 months prior to the survey. The frequency of alcohol use for the rest of this group ranged from once per month to 5 times per week.

Monthly consumption. As shown in Table 5.4 and Figure 5.3, nearly half of the international students in this study did not drink alcohol in the 30 days prior to the survey (46%), while one-quarter of the students used alcohol at least one to two days in the past month (25%). Regarding community college students in the national study (Presley et al., 2004), the proportion of the students who consumed alcohol 5 or fewer days out of 30 was the same as the current study (37%). However, a larger proportion of the students in the national study (27%) than those in the current study (12%) consumed alcohol 6 or more than 6 days in a month.

There was a statistically significant difference in the pattern of alcohol consumption between the F-1 and non-F-1 groups (χ^2 (6) = 13.29, p = .04). Overall, it appears that F-1 students are more likely to consume alcohol than non-F-1 students. This might be related to greater support systems available to the non-F-1 students and better social skills that facilitate them to use problem-focused coping strategies in a given situation in the American culture. Meanwhile, it is unclear to what extent alcohol consumption for the 40% of F-1 students and 4% of non-F-1 students who have been in the United States less than 12 months took place in the United States, the home country, or both. However, as described in the section of Annual consumption, of those who had been in the US less than 12 months and who used alcohol in the past 12 months, 26 respondents (67%) used alcohol in the range of once a month to 5 times per week; 13 students (33%) drank from once to 6 times in the past 12 months. This implies that at least 26 respondents

drank alcohol even after moving to the United States. The issue here is that it is unclear whether this drinking was exclusively due to acculturation stress, due to the ethnic norm of alcohol use, or stress taken over from the home country.

Alcohol use factor score. As originally used by the Core Institute, these four alcohol usage items have traditionally been analyzed separately. Given the importance of an alcohol use measure for this study and some potential inconsistencies in responses to the four alcohol use items, creating an overall usage score was deemed beneficial. To evaluate the possibility of so doing, these four items were factor analyzed using principal components extraction. A single factor was extracted and it explained 62% of the variance in the four drinking items. A factor score based on this analysis was saved for use in subsequent analyses. This overall drinking score correlated well with each of the individual drinking items: .82 with annual consumption, .79 with both monthly consumption and heavy episodic drinking, and .72 with weekly consumption. Where appropriate, this factor score for drinking will be used in addition to the four separate drinking items.

Table 5.4
Level and Frequency of Alcohol Use

	National Study [a]	Current Study		
	2-year Colleges (N = 9,808 [b])	**Total** (N = 269)	**F-1 Students** (N = 126)	**Non F-1 Students** (N = 136)
	%	%	%	%
Heavy episodic drinking in the last 2 weeks				
0	59.2	62.8	56.3	68.4
1	13.3	18.6	19.0	19.1
2	9.5	7.8	12.7	3.7
3 - 5	11.8	6.7	8.7	5.1
6 - 9	3.6	.7	1.6	-
> 10	2.6	.7	.0	1.5
Average # of drinks per week	M = 4.9	M = 1.7	M = 1.9	M = 1.5
0	-	48.3	43.7	52.2
≤ 1	-	18.3	21.5	16.2
2	-	3.7	4.8	2.2
3	-	5.9	7.1	5.1
4	-	3.0	2.4	3.7
5	-	3.3	4.8	2.2
> 5	-	6.4	6.4	6.5
Alcohol use in the past year				
Did not use	20.2	29.7	15.9	42.6
Once per year	8.2	11.2	11.9	10.3
6 time per year	12.9	13.0	16.7	10.3
Once per month	7.9	8.9	12.7	5.9
Twice per month	12.2	7.8	9.5	5.9
Once per week	18.6	17.5	18.3	16.9
3 times per week	14.3	5.6	8.7	2.9
5times per week	4.4	1.1	2.4	.0
every day	1.3	.4	.8	.0
Alcohol use in the past 30 days				
0 day	35.8	45.7	35.7	54.4
1-2 days	21.8	25.3	29.4	22.1
3-5 days	15.4	11.2	14.3	8.8
6-9 days	11.4	7.4	8.7	6.6
10-19 days	11.4	4.1	6.3	2.2
20-29 days	3.1	.4	.8	.0
All 30 days	1.0	.4	.8	.0

a Results from the participants from 2-year institutions (Presley et al. , 2004).

b The number was the participants from 2-year institutions, only 2% of which were international students.

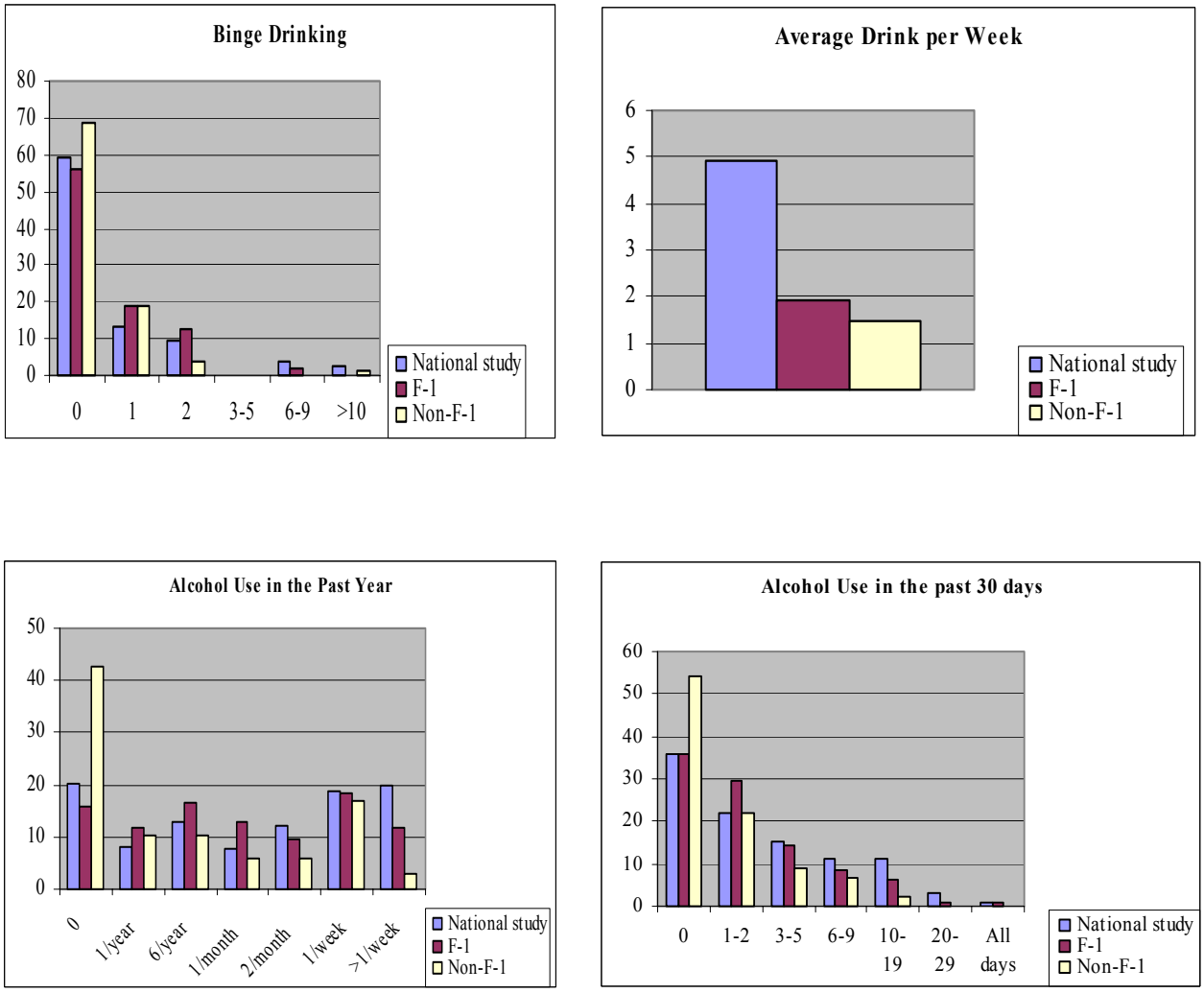

Figure 5.3. **Level and Frequency of Alcohol.**

Location and Companion for Alcohol Use

Table 5.5 and Figure 5.4 list location and companion for alcohol use. Overall, international students are most likely to consume alcohol in "*bar or restaurant*" (32%) followed by "*where they live*" (27%) and "*private parties*" (24%). In the breakdown, top three locations where alcohol was consumed for the F-1 students were also "*bar or restaurant*" (42%), "*where*

they live" (34%) and "*private parties*" (27%), while those for the non-F-1 students were "*bar or restaurant*" (23%), "*private parties*" (21%), and *where they live*" (20%).

In regard to drinking companion, as shown in Table 5.5 and Figure 5.4, more than 60% of the participants usually consume alcohol with others. This tendency is more prevalent among the F-1 students (78%) than the non-F-1 students (49%) (χ^2 (1) = 5.69, p = .017). The proportion of the respondents who did not answer this question was large (25%). This may be due to lack of a choice such as "*not applicable*".

Table 5.5
Location and Companion for Alcohol Use

	Total	**F-1 Students**	**Non F-1 Students**
	%	%	%
Location for drinking [a]	(N = 269)	(N = 126)	(N = 136)
Never used	63.9	78.6	52.2
Campus event	1.1	1.6	.7
Residence hall	3.0	4.0	2.2
Fraternity or sorority	1.5	.8	1.5
Bar or restaurant	31.6	42.1	22.8
Where you live	26.8	34.1	19.9
In a car	2.2	2.4	2.2
Private parties	23.8	27.0	21.3
Other	5.6	6.3	5.4
Drinking companion	(N = 202)	(N = 112)	(N = 90)
Alone	13.8	11.1	16.9
With other (s)	61.3	77.8	49.3

[a] The item allowed for multiple responses.

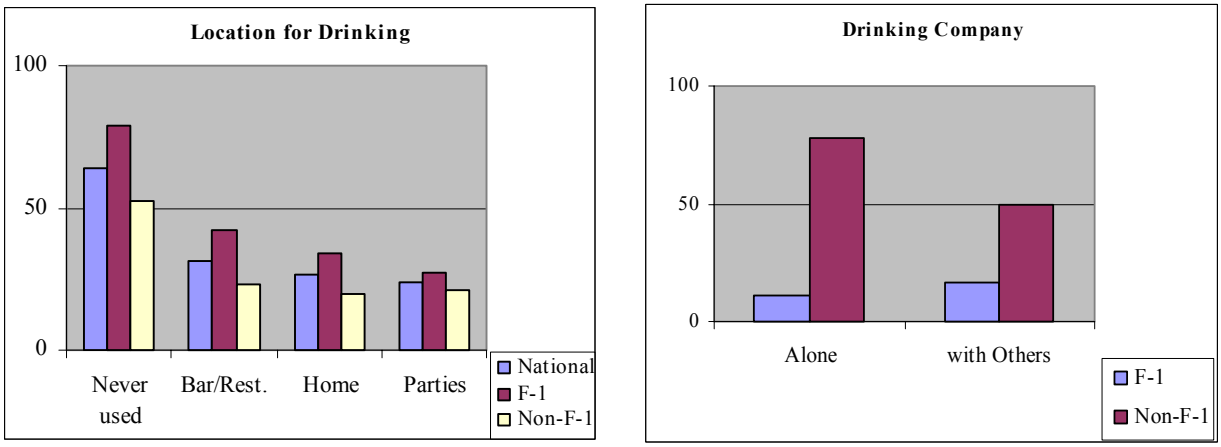

Figure 5.4. **Location and Companion for Alcohol Use.**

Alcohol-Related Negative Consequences

Research question 3 addressed what negative consequences F-1 students attending a community college experienced due to alcohol consumption. The questions used were from CADS, which has19 items addressing problematic consequences due to alcohol use in the past year prior to the survey. As shown in Table 5.6, the majority of the participants in the current study experienced none of these 19 consequences; the proportion of participants who answered each item as "*Never*" ranged from 61% to 93%. Overall, almost half (48%) had no negative consequences. This was true of only 38% of the F-1 group, but of 57% of the non-F-1 group.

Considered individually, the top 10 negative consequences that were experienced by the international students were: (1) hangover (35%), (2) nauseated or vomited (29%), (3) later regretted action (24%), (4) poor test score (19%), (5) driven while intoxicated (DWI) (18%), (6) missed a class (18%), (7) had a memory loss (17%), (8) been criticized (17%), (9) argument or fight (10%), and (10) tried, failed to stop (9%). The pattern of the top three negative

consequences in this study was the same as the national study (Presley et al., 2004). Each percentage of these items in the national study was: hangover (56%), nauseated or vomited (46%), and later regretted action (32%). Regarding the current study, the top three consequences for the F-1 group were hangover (44%), nauseated or vomited (37%), and later regretted action (37%), while those for the non-F-1 group were hangover (26%), nauseated or vomited (21%), and DWI (13%).

Chi-square analyses indicated that the proportion of students in the two groups who experienced negative consequences were not statistically significantly different except for 5 items. These items were: (a) "*Had a hangover*" (χ^2 (5) = 12.07, p = .034); (b) "*Performed poorly on a test or important project*" (χ^2 (4) = 14.28, p = .006); (c) "*Been criticized by someone I know*" (χ^2 (4) = 14.86, p = .005; (d) "*Had a memory loss*" (χ^2 (5) = 13.76, p = .017); (e) "*Done something I later regretted*" (χ^2 (5) = 24.33, p < .001). F-1 students were more likely to have these negative consequences due to alcohol use than non-F-1 students.

Table 5.6
Alcohol-Related Negative Consequences

	%					
Consequences	**Never**	**Once**	**Twice**	**3 – 5**	**6 -9**	**10+**
Had a hangover						
National study [a]	43.8	14.2	10.3	12.7	5.9	13.2
Current study	60.6	15.6	7.4	8.2	1.5	1.9
F-1 students	54.0	20.6	8.7	10.3	3.2	1.6
Non-F-1 students	68.4	11.8	5.9	5.9	-	2.2
Poor test score						
National study [a]	78.0	8.2	5.8	4.9	1.6	1.5
Current study	76.6	7.8	7.1	3.3	-	.4
F-1 students	70.6	11.9	11.1	4.8	-	-
Non-F-1 students	83.8	3.7	3.7	2.2	-	.7
Trouble with police, etc						
National study [a]	88.0	6.9	2.7	1.7	.3	.4
Current study	90.7	2.6	.7	-	.4	-
F-1 students	92.1	3.2	.8	-	.8	-
Non-F-1 students	91.9	1.5	.7	-	-	-
Property damage, fire alarm						
National study [a]	93.1	2.9	1.6	1.2	.4	.8
Current study	91.8	1.5	.4	.4	.4	-
F-1 students	92.1	2.4	.8	.8	.8	-
Non-F-1 students	94.1	-	-	-	-	-
Argument or fight						
National study [a]	71.2	10.8	7.9	5.9	1.9	2.3
Current study	84.0	6.3	1.1	2.6	.4	-
F-1 students	86.5	6.3	-	4.0	-	-
Non-F-1 students	83.8	5.9	2.2	1.5	.7	-
Nauseated or vomited						
National study [a]	54.0	17.1	11.2	9.8	3.7	4.2
Current study	65.8	16.7	5.9	4.5	.7	.7
F-1 students	60.3	21.4	8.7	4.0	1.6	.8
Non-F-1 students	72.8	12.5	3.7	4.4	-	.7
Driven while intoxicated						
National study [a]	63.9	10.2	6.3	7.6	3.3	8.7
Current study	76.2	6.7	4.5	4.5	.4	2.2
F-1 students	73.8	7.9	7.1	4.8	.8	2.4
Non-F-1 students	80.9	5.1	1.5	4.4	-	2.2
Missed a class						
National study [a]	75.4	6.8	5.9	6.4	2.3	3.3
Current study	77.0	9.3	4.5	3.0	.7	-
F-1 students	73.8	12.7	6.3	3.2	1.6	-
Non-F-1 students	82.4	5.9	2.9	2.2	-	-

(*table continues*)

Table 5.6 (*continued*)

	%					
Consequences	**Never**	**Once**	**Twice**	**3 – 5**	**6 -9**	**10+**
Been criticized						
National study [a]	73.7	9.2	6.8	5.3	1.5	3.5
Current study	78.1	10.0	4.1	2.2	.4	-
F-1 students	73.8	11.1	8.7	3.2	.8	-
Non-F-1 students	83.8	8.8	-	1.5	-	-
Thought I had a problem						
National study [a]	90.6	3.6	1.8	1.5	.5	2.1
Current study	86.6	5.9	1.1	-	1.1	-
F-1 students	86.5	8.7	.8	-	1.6	-
Non-F-1 students	89.0	2.9	1.5	-	.7	-
Had a memory loss						
National study [a]	76.2	7.9	5.5	4.8	1.6	3.9
Current study	77.7	10.4	3.3	2.2	.7	.4
F-1 students	75.4	13.5	2.4	4.8	1.6	-
Non-F-1 students	82.4	6.6	4.4	-	-	.7
Later regretted action						
National study [a]	67.9	12.7	7.9	6.2	2.2	3.2
Current study	71.4	11.5	7.1	3.7	.4	1.1
F-1 students	61.9	16.7	12.7	6.3	-	.8
Non-F-1 students	81.6	6.6	2.2	1.5	.7	1.5
Arrested for DWI, DUI						
National study [a]	97.8	1.6	.3	.1	.1	.2
Current study	92.6	.7	-	1.5	-	-
F-1 students	94.4	-	-	3.2	-	-
Non-F-1 students	93.4	.7	-	-	-	-
Been taken advantage of sexually						
National study [a]	89.2	5.8	2.2	1.2	.3	1.3
Current study	87.4	4.5	1.1	1.1	.4	.4
F-1 students	88.9	4.8	.8	2.4	.8	-
Non-F-1 students	88.2	3.7	1.5	-	-	.7
Taken advantage of sexually						
National study [a]	94.6	2.3	1.2	.7	.2	1.0
Current study	89.6	1.9	1.1	1.1	.7	.4
F-1 students	89.7	2.4	1.6	2.4	1.6	-
Non-F-1 students	91.9	.7	.7	-	-	.7
Tried, failed to stop						
National study [a]	93.2	2.5	1.6	1.2	.4	1.1
Current study	86.2	3.3	2.6	2.2	-	.4
F-1 students	85.7	4.8	4.0	2.4	-	.8
Non-F-1 students	89.0	1.5	1.5	2.2	-	-

(*table continues*)

Table 5.6 (*continued*)

	%					
Consequences	**Never**	**Once**	**Twice**	**3 – 5**	**6 -9**	**10+**
Thought about suicide						
National study [a]	94.2	2.5	1.3	.8	.3	.9
Current study	91.4	1.5	.4	.7	.4	-
F-1 students	92.1	1.6	.8	1.6	.8	-
Non-F-1 students	93.4	.7	-	-	-	-
Attempted suicide						
National study [a]	97.9	1.2	.4	.2	.1	.3
Current study	92.2	1.9	-	.7	-	-
F-1 students	93.7	2.4	-	1.6	-	-
Non-F-1 students	93.4	.7	-	-	-	-
Been hurt, injured						
National study [a]	88.4	5.8	3.0	1.5	.4	.8
Current study	90.0	2.6	.4	1.1	.7	-
F-1 students	91.3	2.4	.8	2.4	.8	-
Non-F-1 students	91.2	2.2	-	-	.7	-

[a] 2-year institutions ($N = 90{,}808$) from Presley et al. (2004).

Drinking Motivations

Research question 4 was about reasons for drinking, which were examined by the way of the four subscales of Revised Drinking Motives Questionnaire (DMQ-R) (see Appendix B). As shown in Table 5.7, the average international student drinks for Social motives ($M = 2.35$, $SD = 1.11$) more than for other motives. The second strongest drinking motives were Enhancement ($M = 1.85$, $SD = .97$), followed by Coping motives ($M = 1.78$, $SD = .90$). The least common reason to consume alcohol for this group was Conformity ($M = 1.65$, $SD = .78$). To compare the F-1 group and the non-F-1 group on the four subscales of DMQ-R, MANOVA was conducted. The result indicated that there was a statistically significant difference between these two groups (Hotelling's $T = 6.02$, $p < .001$). Univariate ANOVAs following the MANOVA reported that statistically significant differences were found in all four scores. The group affiliation explained

9% of the variance in each Social and Enhancement motives and 8% of variance in Conformity motives. However, it explained only 5% of the variance in Coping motives. In all these subscales of drinking motives, the F-1 students, on average, scored slightly higher than the non-F-1 students. However, these scores were low to moderate for all of the drinking motives. See Appendix K for mean and standard deviations for male and female total, F-1, and non-F-1 groups, as well as for comparison to two published studies. Figure 5.5 shows mean scores for each motive for the study groups and for the Cooper (1994) and Theakston et al. (2004).

Table 5.7
Drinking Motivations on Revised Drinking Motivation Questionnaire (DMQ-R)

DMQ-R Subscale[a]	Total (N = 269)		F-1 Students (N = 126)		Non-F-1 Students (N = 136)		F[b]	p	ES[c]
	M	*SD*	*M*	*SD*	*M*	*SD*			
Social motives	2.35	1.11	2.67	1.07	2.03	1.05	22.82	.000	.05
Enhancement motives	1.85	.97	2.14	1.04	1.56	.81	24.51	.000	.09
Coping motives	1.78	.90	1.99	.91	1.57	.85	13.94	.000	.09
Conformity motives	1.65	.78	1.87	.79	1.43	.70	21.35	.000	.08

[a] Subscale scores range 1 to 5, where higher scores indicate greater motivation for drinking. The original items were coded 1 = "*almost never/never"* to 5 = "*always/almost always"*.
[b] Univariate *F*-tests following a multivariate Hotelling *T*-tests.
[c] Effect size.

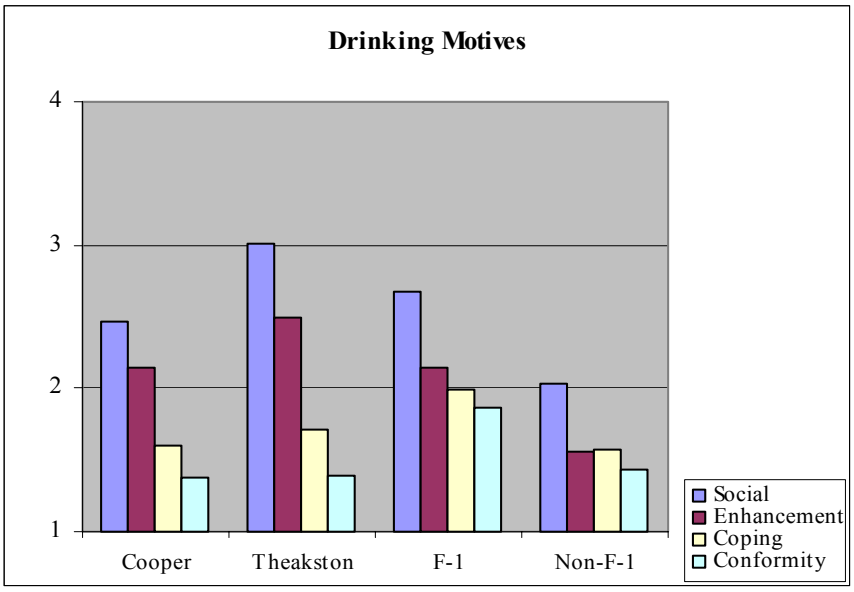

Figure 5.5. **Drinking Motivations on Revised Drinking Motivation Questionnaire (DMQ-R).**

Interrelationships of Variables on Research Foci

Only data from students who indicated some level of alcohol use were selected for further analyses to accurately measure drinking motivation as suggested by Cooper (1994), who developed DMQ-R. As a process, prior to analyzing interrelationships of levels of alcohol use, acculturation stress, drinking motivations, and alcohol-related negative consequences, the data that indicated no alcohol use or inconsistent responses were excluded. Based on responses to all four alcohol consumption items from CADS, 46 respondents were clearly indicated as non-drinkers; therefore, the data were excluded from the further analyses. Additionally, there were 32 respondents who indicated that they do not drink on these four drinking items but who also checked one or more motives for drinking as well as one or more negative consequences. It is unclear if they misrepresented their frequency and amount of drinking or if they misunderstood the motives and consequences items. In either case, these data are suspect and, therefore, also

excluded from further analyses. Some demographic attributes of the 78 participants who indicated no or inconsistent alcohol usage were: (a) more were non-F-1 (41%) than F-1 (16%) students, (b) more were females (10% for F-1 and 29% for non-F-1 students) than males (6% for F-1 and 11% for non-F-1 students), (c) more non-F-1 (12%) than F-1 (4%) students were underage (< 21), and (d) more non-F-1 (26%) than F-1 (6%) students indicated that they agreed with the college alcohol policy.

The respondents who did not identify the visa status were also excluded. As a result, the data from 186 respondents (N = 106 for F-1 students; N = 80 for non-F-1 students) were used for analyzing the interrelationships. Because the original target population of the current study was F-1 students, the hypotheses were tested and answered based on the data from this group. However, the same hypotheses were also tested and answered for the non-F-1 group, which comprised about half of the responding students. Comparing results of the F-1 group and the non-F-1 group will add useful information.

Reliability of Measures

Table 5.8 presents reliabilities of ILS and DMQ-R measured by Cronhach's alpha. Regarding the F-1 group on ILS, all subscales, except academic pressure (α = .30), indicated moderate internal consistencies ranging from .53 to .74. Across the groups shown in Table 5.8, the alphas were low on academic pressure ranging from .30 to .50. This might be due to different levels of English skills for the students and their various study intentions, which are not all for pursuing an academic degree. This tendency was more likely for F-1 students (α = .33 and .30), the majority of whom mostly attended the non-credit ESL program. All DMQ-R subscales indicated excellent internal consistencies. Their alpha levels were above .81 except Conformity motives for the F-1 drinking group (α = .77).

Table 5.8
Cronbach's Alpha of Scales

Scale	Subscales	Cronbach's alpha					
		Total		F-1 Students		Non-F-1 Students	
		All [a] (*N* = 269)	Drink [b] (*N* = 186)	All [a] (*N* = 126)	Drink [b] (*N* = 106)	All [a] (*N* = 136)	Drink [b] (*N* = 80)
ILS	Financial concern	.75	.78	.75	.74	.76	.81
	Perceived discrimination	.74	.72	.74	.71	.73	.71
	Language difficulty	.72	.70	.65	.59	.74	.76
	Cultural adjustment	.54	.54	.50	.53	.53	.46
	Academic pressure	.43	.36	.33	.30	.50	.41
DMQ-R	Social motives	.92	.87	.90	.87	.91	.86
	Enhancement motives	.91	.86	.91	.85	.90	.87
	Coping motives	.89	.89	.87	.89	.89	.88
	Conformity motives	.84	.82	.81	.77	.85	.85

[a] All respondents including both respondents who drink and who do not drink.
[b] Respondents who have consumed alcohol to at least some extent in the past year.

Correlation Among Acculturation Stress, Drinking Motivations Alcohol Use, and Alcohol-Relate Negative Consequences

Research question 5 dealt with interrelationships among acculturation stress, drinking motivations, alcohol use, and alcohol-related negative consequences. Bivariate correlations between ILS, and DMQ-R subscales, and a drinking factor score were calculated by Pearson *r*, and biserial correlations between each subscale of ILS, DMQ-R, and the four levels of alcohol items from CADS were calculated. These alcohol items were: (a) heavy episodic drinking in the past 2 weeks (binge drinking), (b) average drinks per week, (c) the number of drinks in the past year, and (d) the number of drinks in the past 30 days.

Regarding F-1 students, as shown in Table 5.9, statistically significant correlations among the acculturation stress subscales were observed primarily with cultural adjustment and

the perceived discrimination. F-1 students with higher perceived discrimination scores were also more likely to perceive stress attributed to cultural adjustment (r = .51), academic pressure (r = .48), and language difficulty (r = .31), although correlations were moderate. All of the four drinking motives were fairly correlated with each other ranging from .51 to .76. The strongest relationships were between Enhancement and Social motives (.76) and between Enhancement and Conformity motives (.75).

In term of correlations between acculturation stress and drinking motives, overall, there were only a few statistically significant relationships, and these were relatively low. Perceived discrimination tended to be related to Conformity motives (r = .38) and to Coping motives (r = .30). The language difficulty and Conformity motives also indicated moderate correlation (r = .31). There was some indication that F-1 students who used alcohol for Social motives had less stress from cultural adjustments (r = -.22). As a result, hypothesis 1, which stated that Coping motives for drinking would be more strongly associated with acculturation stress than the other three motives, was not supported. It appears that, at least for this group of F-1 students, drinking motives are not very related to any form of acculturation stress.

The four alcohol usage items were correlated with each other (from .58 to .76) and they correlated very well with the overall drinking factor score (.82, .77, .82, and .79). Based on the drinking factor score, no relationship was evident with any of the stress measures. In contrast, the drinking score was related to all four motivations for drinking measures. Alcohol use was most related to Enhancement (.53) and to Social motives (.43) and only mildly related to Conformity (.34) and Coping motives (.27). This pattern was fairly consistent across each of the four drinking items. Hypothesis 2, which stated that Enhancement motives would be more strongly

associated with alcohol usage for F-1 students than the other three motives for drinking, was therefore supported.

Table 5.9
Correlations Between Subscale Scores with Alcohol Consumption For F-1 Students Who Use Alcohol

Scales / Subscales		1	2	3	4	5	6	7	8	9	10	11	12	13
	ILS													
1	Language	(.59)												
2	Adjustment	.34**	(.53)											
3	Academic	.20	.23*	(.30)										
4	Discrimination	.31**	.51**	.48**	(.71)									
5	Financial	.15	.26**	.22*	.11	(.74)								
	DMQ													
6	Social	.11	-.22*	.10	.09	.04	(.87)							
7	Enhancement	.11	-.07	.11	.17	-.04	.76*	(.85)						
8	Coping	.12	.11	.11	.30**	.09	.51**	.57**	(.89)					
9	Conformity	.31**	.10	.11	.38**	.02	.70**	.75**	.61**	(.77)				
	CADS													
10	Bingeing	.08	-.02	.06	.11	.01	.47**	.56**	.30**	.49**	--			
11	Average	-.06	-.17	-.06	-.08	-.06	.39**	.45**	.23*	.23*	.64**	--		
12	Past year	-.05	-.16	-.02	.11	-.17	.46**	.57**	.30**	.39**	.58**	.76**	--	
13	Past 30 days	-.03	-.24*	.01	-.00	-.09	.48**	.53**	.27**	.30*	.64**	.69**	.70**	--
14	Drinking Factor score	-.01	-.11	.09	.02	-.12	.43**	.53**	.27**	.34**	.82**	.77**	.82**	.79**

Note. 1 = Language difficulty (N = 104). 2 = Cultural adjustment (N = 104). 3 = Academic pressure (N = 104). 4 = Perceived discrimination (N = 104). 5 = Financial concern (N = 104). 6= Social motives (N = 103). 7 = Enhancement motives (N = 103). 8 = Coping motives (N = 103). 9 = Conformity motives (N = 103). 10 = Heavy episodic drinking in the past 2 weeks (N =103). 11 = Average alcohol use per week (N = 96). 12 = Alcohol use in the past year (N = 102). 13 = Alcohol use in the past 30 days (N = 101). 14 = Drinking factor score (N = 95).
* $p < .05$. ** $p < .01$.

Regarding non-F-1 students, as shown in Table 5.10, all acculturation stress subscore correlations, except the correlation between academic pressure and perceived discrimination, were statistically significant although their relationships were moderate to weak. Stronger

relationships were observed across the areas of language difficulty and financial concerns. The highest correlation was observed between academic pressure and language difficulty (r = .54) followed by academic pressure and financial concern (r = .49). In comparison to the F-1 group, perceived discrimination was less strongly correlated across the other areas of acculturation stress in the non-F-1 group. Drinking motives were correlated with each other and relationships were almost identical for F-1 and non-F-1 students.

On the correlation between acculturation stress and drinking motivations of the non-F-1 students, there were only five correlations that were statistically significant. Three of these correlations involved Conformity motives, which was related to language difficulty (r = .35), academic pressure (r = .33), and financial concern (r = .24). These results were different from those of F-1 students who indicated no statistically significant correlations between any of drinking motives and academic pressure. Further, in the non-F-1 group, there were no statistically significant relationships between perceived discrimination and any of the drinking motives, while two statistically significant correlations were found between perceived discrimination and the motives of Conformity (r = .38) and Coping (r = .30) in the F-1 group. It appears that the stress due to perceived discrimination is more likely to be related to drinking motives to control negative affect (Conformity and Coping motives) for the F-1 students than for non-F-1 students. However, language difficulty and Conformity drinking were rather strongly correlated for both F-1 students (r = .31) and non-F-1 students (r = .35) although each correlation was weak.

Results for the alcohol usage items in the non-F-1 group somewhat paralleled the F-1 group results. The four items were correlated to each other to a lesser degree than for the F-1 group, but they were all as highly correlated to their corresponding drinking factor score as in the

F-1 group. The drinking factor scores were not related to stress, but were related to drinking motives, only to a weaker degree than for the F-1 students.

Table 5.10
Correlations Between Subscale Scores with Alcohol Consumption For Non-F-1 Students Who Use Alcohol

Scales / Subscales		1	2	3	4	5	6	7	8	9	10	11	12	13
	ILS													
1	Language	(.76)												
2	Adjustment	.42**	(.46)											
3	Academic	.54**	.26*	(.41)										
4	Discrimination	.27*	.38**	.08	(.71)									
5	Financial	.39**	.44**	.49**	.34**	(.81)								
	DMQ													
6	Social	.05	.08	.08	.15	.10	(.86)							
7	Enhancement	.22	.14	.28*	.08	.17	.76**	(.87)						
8	Coping	.26*	.09	.23	.16	.19	.52**	.73**	(.88)					
9	Conformity	.35**	.22	.33**	.15	.24*	.66**	.75**	.68**	(.85)				
	CADS													
10	Bingeing	.06	.19	.08	.05	.11	.29*	.33**	.18	.23	--			
11	Average	-.04	-.09	.00	-.14	-.09	.25*	.31**	.17	.11	47**	--		
12	Past year	-.13	-.08	-.05	-.13	-.12	.31**	.21	.09	-.02	.28*	.57**	--	
13	Past 30 days	-.11	-.02	.10	-.09	-.15	.34**	.21	.11	.12	.49**	.54**	.65**	--
14	Drinking Factor score	-.12	-.01	-.06	-.17	-.12	.38	.39	.21	.28	.80	.73	.82	.84

Note. 1 = Language difficulty ($N = 78$). 2 = Cultural adjustment ($N = 78$). 3 = Academic pressure ($N = 78$). 4 = Perceived discrimination ($N = 78$). 5 = Financial concern ($N = 78$). 6= Social motives ($N = 73$). 7 = Enhancement motives ($N = 73$). 8 = Coping motives ($N = 74$). 9 = Conformity motive ($N = 74$). 10 = Heavy episodic drinking in the past 2 weeks ($N = 78$). 11 = Average alcohol use per week ($N = 72$). 12 = Alcohol use in the past year ($N = 76$). 13 = Alcohol use in the past 30 days ($N = 75$). 14 = Drinking factor score ($N = 95$).
* $p < .05$. ** $p < .01$.

Relationships with Alcohol-Related Negative Consequences

As shown in Table 5.6 and Appendix L, most respondents indicated that they never experienced any of the 19 negative consequences. Regarding F-1 students who indicated alcohol

use, eight of the 19 consequences listed were experienced by one-quarter of all respondents or more. These consequences and the frequencies of these F-1 students were: (1) hangover, 55; (2) later regretted their action, 45; (3) nauseated or vomited, 44; (4) poor test score, 34; (5) DWI, 29; (6) missed a class, 29; (7) been criticized, 29; and (8) had a memory loss, 28. Consequences other than these top eight were experienced by no more than 4 to 15. In contrast, there were only two negative consequences that one-quarter or more of non-F-1 students who reported consistent alcohol consumption had encountered. These consequences and frequencies of the students were: (1) hangover, 33 and (2) nauseated or vomited, 28. The frequencies of non-F-1 students who experienced consequences other than these two ranged from 1 to 18. Attempting to explore relationships between consequences and other variables with such small subsets of respondents would not be very sound. Therefore, no such analyses are included and hypothesis 3 could not be explored.

Acculturation Stress and Drinking Motivation as Predictors for Alcohol Use

To explore these relationships further, and because of their interrelated nature, hierarchical multiple regression analyses were conducted to determine which set of the four drinking motives predict alcohol consumption after accounting for acculturation stress. The four drinking variables were used as the criterion in each of four hierarchical multiple regressions. The five ILS stress scale scores were entered in the first block and the four DMQ-R motives for drinking scale scores were entered in the second block. These analyses were run separately for F-1 and non-F-1 students who indicated some alcohol consumptions, and the results are both presented in Table 5.11.

Considering results for F-1 students first, the stress measures explained from 3% to 10% of the criteria, but this was not statistically significant in any of the equations for F-1 students.

The motives for drinking explained an additional statistically significant amount in each case, explaining 28% of the variance in binge drinking [F (9, 93) = 4.70, $p < .001$], 10 % of average use per week, [F (9, 86) = 1.85; $p = .07$], 25% of alcohol use in the past year [F (9, 92) = 5.42; $p < .001$], and 17% of alcohol use in the past 30 days [F (9, 91) = 2.74; $p = .007$]. However, in each of these four equations, the only motivation score that attained a statistically significant coefficient was the one representing Enhancement motives (betas ranged from .39 to .52). This finding is consistent to antecedent studies (Cooper, 1994; Cooper et al., 1992; Hussong, 2003; Lecci et al., 2002; Martens, Cox, Beck, & Heppner, 2003b; Simons et al., 2000). Further, this result supported hypothesis 2, that Enhancement motives in comparison to the other three motives would be most strongly associated with higher levels of alcohol use.

As also shown in Table 5.11 for non-F-1 students, the stress measures explained from 6% to 17% of the criteria, but this was not statistically significant in any of the equation except for alcohol use in the past 30 days [F (5, 66) = 2.62, $p = .032$]. The drinking motivations explained an additional statistically significant amount in each model, explaining 18% of the number of drinks in the past year, 15% of the binge drinking, 12% of the average alcohol use per week, and 11% of the alcohol use in the past 30 days. However, in each of the four equations, the only motivation scores that attained a statistically significant coefficient was Enhancement ($\beta = .51$) in the average drink [F (9, 60) = 2.01, $p = .05$] and Social ($\beta = .46$) as well as Conformity ($\beta = -.47$) in the past year [F (9, 63) = 2.18, $p = .04$]. In contrast to the F-1 group and the findings from the earlier studies in which Enhancement motives were the strongest predictors of alcohol use, for the non-F-1 students, Enhancement motives were only strong predictors of the average drinks per week. Coefficients of stress that were statistically significant were the cultural adjustment in binge drinking ($\beta = .36$) as well as in the average alcohol use per week ($\beta = -.30$),

the academic pressure in the past 30 days (β = .36), and the financial concern in the alcohol use in the past 30 days (β = -.46).

Repeating the same analysis using the combined drinking factor score as the criterion produced results consistent with the individual drinking variables. For F-1 students, the five acculturation stress variables explained a non-significant 4% of the drinking factor score. In the second step, the four motives for drinking explained an additional statistically significant 27% of the drinking score. In the final equation, only the Enhancement motive produced a statistically significant coefficient (beta = .56). Results were slightly different for the non-F-1 students. The acculturation stress variables explained a non-significant 8% and the motive variables explained an additional 19% of the drinking score.

In sum, for the F-1 group, Enhancement motives explained the frequency and amount of alcohol use presented by the four items of alcohol use better than the rest of the motives, which were Social, Coping, and Conformity, did. In contrast, Enhancement motives only explained the average alcohol use per week for the non-F-1 group.

Table 5.11

Hierarchical Regressions Predicting Alcohol Use by Acculturation Stress and Drinking Motivations for F-1 and Non-F-1 Students Who Use Alcohol

Criterion (*N*)	Step	Predictor	Final Step				Change Statistics		
			B	SE *B*	β	*p*	ΔR^2	ΔF	*p*
Bingeing [a]	Step 1	F-1					.03	.65	.67
		Non-F-1					.11	1.67	.15
F-1 (103)									
Non-F-1 (73)		**Language difficulty**							
		F-1	-.19	.23	-.08	.41			
		Non-F-1	-.80	.41	-.29	.05			
		Cultural adjustment							
		F-1	.12	.32	.04	.72			
		Non-F-1	1.49	.57	.36	.01			
		Academic pressure							
		F-1	.40	.29	.15	.17			
		Non-F-1	.16	.50	.05	.75			
		Perceived discrimination							
		F-1	-.27	.31	-.11	.38			
		Non-F-1	-.50	.45	-.14	.27			
		Financial Concern							
		F-1	-.08	.18	-.04	.67			
		Non-F-1	-.18	.34	-.06	.69			
	Step 2	F-1					.28	9.48	< .001
		Non-F-1					.15	3.21	.02
		Social motives							
		F-1	.14	.20	.11	.48			
		Non-F-1	-.03	.34	-.01	.94			
		Enhancement motives							
		F-1	.47	.19	.39	.02			
		Non-F-1	.47	.45	.24	.30			
		Coping motives							
		F-1	-.15	.16	-.11	.35			
		Non-F-1	.06	.33	.03	.86			
		Conformity motives							
		F-1	.29	.27	.18	.29			
		Non-F-1	.43	.42	.20	.31			

(*table continues*)

Table 5.11
Hierarchical Regressions Predicting Alcohol Use by Acculturation Stress and Drinking Motivations for F-1 and Non-F-1 Students Who Use Alcohol *(continued)*

Criterion	Step	Predictor	Final Step				Change Statistics		
			B	**SE *B***	**β**	***p***	**ΔR^2**	**ΔF**	***p***
Per week [b]	Step 1	F-1					.06	1.17	.33
		Non-F-1					.12	1.66	.16
F-1 (96)									
Non-F-1 (73)		**Language difficulty**							
		F-1	-.37	1.01	-.04	.72			
		Non-F-1	-.40	.99	-.06	.69			
		Cultural adjustment							
		F-1	.95	1.37	.09	.49			
		Non-F-1	-2.83	1.35	-.30	.04			
		Academic perceived							
		F-1	.34	1.26	.03	.79			
		Non-F-1	-.21	1.20	-.03	.86			
		Perceived discrimination							
		F-1	-1.24	1.33	-.13	.35			
		Non-F-1	-.98	1.08	-.12	.36			
		Financial concern							
		F-1	-1.60	.81	-.21	.05			
		Non-F-1	.32	.78	.06	.69			
	Step 2	F-1					.10	2.60	.04
		Non-F-1					.12	2.28	.07
		Social motives							
		F-1	.06	.89	.01	.95			
		Non-F-1	-.54	.80	-.13	.50			
		Enhancement motives							
		F-1	1.92	.85	.41	.03			
		Non-F-1	2.22	1.03	.51	.03			
		Coping motives							
		F-1	-.16	.69	-.03	.81			
		Non-F-1	-1.10	.76	-.27	.15			
		Conformity motives							
		F-1	-.72	1.18	-.12	.54			
		Non-F-1	.65	.99	.13	.52			

(*table continues*)

Table 5.11

Hierarchical Regressions Predicting Alcohol Use by Acculturation Stress and Drinking Motivations for F-1 and Non-F-1 Students Who Use Alcohol (*continued*)

Criterion	Step	Predictor	Final Step				Change Statistics		
			B	SE *B*	β	*p*	ΔR^2	ΔF	*p*
Past year [c]	Step 1	F-1					.10	2.08	.08
		Non-F-1					.06	.82	.54
F-1 (102)									
Non-F-1 (73)		**Language difficulty**							
		F-1	-.37	.33	-.11	.26			
		Non-F-1	-.46	.42	-.16	.28			
		Cultural adjustment							
		F-1	-.44	.46	-.11	.34			
		Non-F-1	.39	.60	.09	.52			
		Academic pressure							
		F-1	-.06	.41	-.01	.89			
		Non-F-1	.40	.52	.11	.44			
		Perceived discrimination							
		F-1	.61	.43	.17	.16			
		Non-F-1	-.41	.47	-.11	.39			
		Financial concern							
		F-1	-.29	.26	-.10	.27			
		Non-F-1	-.35	.35	-.14	.33			
	Step 2	F-1					.25	8.76	< .001
		Non-F-1					.18	3.72	.01
		Social motives							
		F-1	.20	.29	.11	.49			
		Non-F-1	.87	.36	.46	.02			
		Enhancement motives							
		F-1	.86	.28	.49	.00			
		Non-F-1	.15	.46	.07	.75			
		Coping motives							
		F-1	-.16	.23	-.08	.48			
		Non-F-1	.43	.35	.23	.22			
		Conformity motives							
		F-1	-.02	.39	-.01	.95			
		Non-F-1	-1.04	.43	-.47	.02			

(*table continues*)

Table 5.11

Hierarchical Regressions Predicting Alcohol Use by Acculturation Stress and Drinking Motivations for F-1 and Non-F-1 Students Who Use Alcohol *(continued)*

Criterion	Step	Predictor	Final Step				Change Statistics		
			B	SE *B*	β	*p*	ΔR^2	ΔF	*p*
Past 30 days [d]	Step 1	F-1					.05	.92	.47
		Non-F-1					.17	2.62	.03
F-1 (101)									
Non-F-1 (72)		**Language difficulty**							
		F-1	-.20	.86	-.03	.82			
		Non-F-1	-.88	.58	-.22	.14			
		Cultural adjustment							
		F-1	-.98	1.20	-.10	.42			
		Non-F-1	1.43	.81	.24	.08			
		Academic pressure							
		F-1	.88	1.07	.09	.41			
		Non-F-1	1.82	.70	.36	.01			
		Perceived discrimination							
		F-1	.51	1.13	.06	.65			
		Non-F-1	.09	.64	.02	.89			
		Financial concern							
		F-1	.09	.68	.01	.90			
		Non-F-1	-1.56	.47	-.46	.00			
	Step 2	F-1					.17	4.83	.00
		Non-F-1					.11	2.25	.07
		Social motives							
		F-1	.05	.75	.01	.95			
		Non-F-1	.76	.49	.29	.13			
		Enhancement motives							
		F-1	2.19	.72	.52	.00			
		Non-F-1	.23	.63	.08	.72			
		Coping motives							
		F-1	.25	.60	.05	.68			
		Non-F-1	.47	.47	.18	.32			
		Conformity motives							
		F-1	-1.15	1.03	-.20	.27			
		Non-F-1	-.77	.58	-.25	.19			

[a] Binge drinking in the past 2 weeks. [b] Average number of drinks per week. [c] Number of drinks in the past year. [d] number of drinks in the past 30 days.

A possibility of multicollinearity, which is the intercorrelations among the predictors in a multiple regression equation interfering with the accurate estimation of each regression coefficient (Allison, 1999), was calculated by tolerance ($1\text{-}R^2$). All tolerance values of ILS subscales for both F-1 and non-F-1 group were above .50 indicating that a possibility of multicollinearity was unlikely. However, all tolerance values of DMQ-R subscales, except Coping motives for the F-1 students, ranged from .23 to .37, which indicated possibilities of multicollinearity effects, although it is moderate (Licht, 2001) or low (Pallant, 2005).

Gender, Age, Geographic Regions Differences in Alcohol Use, Acculturation Stress, and Drinking Motivations

Research question 6 posed a question about between-group differences in gender, age, geographical regions, and cultural orientation, in regard to levels of alcohol use, acculturation stress, and drinking motivations. It is important to report that, due to too small sample sizes in some subgroups, all of the proposed hypotheses could not be tested. As a result, alternative analyses were conducted on topics relevant to the research foci of this study.

Gender Differences for Drinking Students

Gender differences in alcohol use. Separate one-way between-group MANOVAs were conducted to test hypothesis 4, which predicted that males would score higher in alcohol use, acculturation stress, and each motive of drinking than females. Preliminary analyses were done in each case to check for normality, linearity, univariate and multivariate outliers, homogeneity of the covariance matrices, and multicollinearity. No serious violation was noted. To investigate differences in alcohol use, the four alcohol items of CADS, which were the binge drinking, the average drinks per week, the number of drinks in the past year, and the number of drinks in the

past 30 days, were used as the dependent variables. Hotelling's Trace indicated a statistically significant difference [F (4, 90) = 4.53, p = .002, T = .20, η^2 = .17] with males averaging higher drinking scores than females on all four variables. As shown in Table 5.12, follow-up univariate ANOVAs were all statistically significant. As also shown in Table 5.12, the result indicated that males consume more than females in terms of binge drinking, the average drinks per week, the alcohol use in the past year, and the alcohol use in the past 30 days. Yet, all of the effect sizes for these four items indicated that the differences were weak (η^2 ranged from .05 to .14). As a result, hypothesis 4 was supported, but with differences not being dramatic.

Gender differences in acculturation stress. Regarding gender differences in acculturation stress, a one-way between-group MANOVA was conducted using the five subscales of ILS, which were language difficulty, cultural adjustment, academic concerns, perceived discrimination, and financial concerns, as the dependent variables. Hotteling's Trace indicated that there were no statistically significant differences between females and males on acculturation stress variables, [F (5, 100) = 2.17, p = .063, T = .11, η^2 = .10]. Therefore, separate univariate follow-up examinations were not considered. As a result, this part of the hypothesis 4 on acculturation stress was not supported.

Gender differences in drinking motivations. Regarding the motivation for drinking, a one-way between-group MANOVA was conducted with the four subscales of DMQ-R, which were Social motives, Enhancement motives, Coping motives, and Conformity motives, used as the dependent variables. Hotelling's Trace indicated that there was a statistically significant difference between females and males on the drinking motives, [F (4, 99) = 3.47, p = .011, Hotelling's T = .14, η^2 = .12]. As shown in Table 5.12, when the results for the dependent variables were investigated separately by univariate ANOVAs, statistically significant

differences were revealed on Conformity motives and Enhancement motives. Males scored higher than females on both, although the differences were small and effect sizes relatively weak. As a result, hypothesis 4 was partially supported in terms of drinking motivations.

Gender differences for non-F-1 students. The same analysis procedures were performed to test hypothesis 4 regarding non-F-1 students. In contrast to F-1 students among whom statistically significant gender differences were reported on one or more areas of alcohol use and drinking motives, there were no statistically significant gender differences on any of the dependent variables: alcohol use [F (4, 66) = .35, p = .85, Hotelling's T = .02, η^2 = .02], acculturation stress [F (5, 74) = 1.22, p = .307, Hotelling's T = .08, η^2 = .08], and drinking motives [F (4, 68) = 1.13, p = .349, Hotelling's T = .07, η^2 = .06] (see Table 5.13).

In sum, gender differences were found in alcohol use among F-1 students. In contrast, there were no gender differences in alcohol use among non-F-1 group. The finding for F-1 students was consistent with the antecedent research on the general college students on American campuses, in which males were more likely to consume alcohol than females (Ham & Hope, 2003: NIAAA, 2002; O'Malley & Johnson, 2002; Presley et al., 2004; Wechsler et al., 2002). In terms of acculturation stress, the current study revealed no gender difference in both F-1 and non-F-1 students. This result was consistent with a study by Yeh and Inose (2003), other studies suggested that gender differences in acculturation stress vary across different factors of stress (Mallinckrodt & Leong, 1992; Rhman & Rollock, 2004). Regarding drinking motivations, the finding of the current study that male F-1 students in contrast to female F-1 students consumed alcohol more for Enhancement and Conformity motives is consistent with the study by Cooper (1994), although Cooper's population was adolescents. However, the result of the current study differed from the study by Theakston et al., (2004), in which female college students scored

higher for all of the four drinking motives. Regarding non-F-1 students, no gender difference in drinking motives was found. Overall, hypothesis 4, which stated that males would score higher in levels of alcohol use, acculturation stress, and each motive of drinking than females, was only supported on F-1 students in terms of all items of alcohol use and motives of Enhancement and Conformity.

Table 5.12
Mean and Standard Deviation of Gender for F-1 Students Who Use Alcohol

Scale	Variable	*N*	*M*	*SD*	***F*** [a]	***p***	***ES*** [b]
CADS	Bingeing [c]				5.21	.025	.05
	Female	48	.73	1.05			
	Male	47	1.32	1.45			
	Average per week [d]				9.57	.003	.09
	Female	48	.85	1.28			
	Male	47	3.75	6.35			
	Past year [e]				15.01	< .001	.14
	Female	48	3.00	1.57			
	Male	47	4.30	1.69			
	Past 30 days f				6.81	.011	.07
	Female	48	1.77	2.55			
	Male	47	4.04	5.45			
ILS [g]	Language difficulty				1.34	.250	.01
	Female	54	1.63	.57			
	Male	52	1.75	.47			
	Cultural adjustment				1.31	.255	.01
	Female	54	1.29	.47			
	Male	52	1.19	.40			
	Academic pressure				.13	.717	.00
	Female	54	1.78	.49			
	Male	52	1.75	.43			
	Perceived discrimination				.73	.394	.01
	Female	54	1.08	.54			
	Male	52	1.17	.49			
	Financial concern [h]				4.63	.034	.04
	Female	54	1.86	.63			
	Male	52	1.60	.63			
DMQ-R [i]	Social motives				2.21	.140	.02
	Female	53	2.74	.98			
	Male	51	3.02	.94			
	Enhancement motives				6.46	.012	.06
	Female	53	2.04	.93			
	Male	51	2.53	1.04			
	Coping motives				1.22	.272	.01
	Female	53	2.02	.93			
	Male	51	2.21	.83			
	Conformity motives				10.90	.001	.10
	Female	53	1.74	.64			
	Male	51	2.22	.81			

[a] Univariate *F*-tests following a multivariate Hotelling *T*-tests. [b] Effect size. [c] Binge drinking in the past 2 weeks. [d] Average number of drinks per week. [e] Number of drinks in the past year. The original items were coded 0 = *did not use*, 1 = *once/year*, 2 = *6 times/year*, 3 = *once/month*, 4 = *twice/month*, 5 = *once/week*, 6 = *3 times/week*, 7 = *5 times/week*, and 8 = *every day*. [f] Number of drinks in the past 30 days. The original items were coded 0 = *0 days*, 1 = *1-2 days*, 3 = *3-5 days*, 6 = *6-9 days*, 10 = *10-19 days*, 20 = *20-29 days*, and 30 = *all 30 days*. [g] Subscale scores range 0 to 3, where higher scores indicate greater acculturation stress. The original items were coded 0 = "*never"* to 3 = "*often"*. [h] Group difference in gender was not statistically significant (p = .063, T = .11). [i] Subscale scores range 1 to 5, where higher scores indicate greater drinking motivation. The original items were coded 1 = "*almost never/never"* to 5 = "*always/almost always"*.

Table 5.13
Mean and Standard Deviation of Gender for Non-F-1 Students Who Use Alcohol

Scale	Variable	*N*	*M*	*SD*	***F*** [a]	***p***	***ES*** [b]
CADS	Bingeing [c]				.02	.877	.000
	Female	29	.93	1.96			
	Male	42	1.00	1.74			
	Average per week [d]				.56	.456	.01
	Female	29	2.17	4.05			
	Male	42	2.89	3.94			
	Past year [e]				.42	.520	.01
	Female	29	3.38	1.90			
	Male	42	3.10	1.76			
	Past 30 days [f]				.02	.898	.00
	Female	29	2.10	3.06			
	Male	42	2.02	2.18			
ILS [g]	Language difficulty				.07	.798	.00
	Female	35	1.40	.69			
	Male	45	1.44	.65			
	Cultural adjustment				.05	.824	.00
	Female	35	.93	.43			
	Male	42	.95	.43			
	Academic pressure				2.25	.137	.03
	Female	35	1.64	.49			
	Male	45	1.82	.57			
	Perceived discrimination				1.65	.202	.02
	Female	35	.97	.51			
	Male	45	.82	.50			
	Financial concern				1.89	.173	.02
	Female	35	1.30	.83			
	Male	45	1.43	.67			
DMQ-R [h]	Social motives				.32	.561	.01
	Female	32	2.68	1.02			
	Male	41	2.54	.94			
	Enhancement motives				.46	.460	.01
	Female	32	1.81	.84			
	Male	41	1.97	.97			
	Coping motives				.24	.615	.00
	Female	32	1.85	1.01			
	Male	41	2.00	.94			
	Conformity motives				.43	.430	.01
	Female	32	1.58	.73			
	Male	41	1.74	.89			

[a] Univariate *F*-tests following a multivariate Hotelling *T*-tests. [b] Effect size. [c] Binge drinking in the past 2 weeks. [d] Average number of drinks per week. [e] Number of drinks in the past year. The original items were coded 0 = *did not use*, 1 = *once/year*, 2 = *6 times/year*, 3 = *once/month*, 4 = *twice/month*, 5 = *once/week*, 6 = *3 times/week*, 7 = *5 times/week*, and 8 = *every day*. [f] Number of drinks in the past 30 days. The original items were coded 0 = *0 days*, 1 = *1-2 days*, 3 = *3-5 days*, 6 = *6-9 days*, 10 = *10-19 days*, 20 = *20-29 days*, and 30 = *all 30 days*. [g] Subscale scores range 0 to 3, where higher scores indicate greater acculturation stress. The original items were coded 0 = "*never"* to 3 = "*often"*. [h] Subscale scores range 1 to 5, where higher scores indicate greater drinking motivation. The original items were coded 1 = "*almost never/never"* to 5 = "*always/almost always"*.

Age Differences for Drinking Students

A between-group difference in age between an age group of 18-22 vs. an age group of over 23 was originally proposed for testing in hypothesis 5. However, because the Box's *M* test value indicated a violation of variance/covariance equality between groups, the test was not conducted. However, when the age groups were divided at 24 years (comparing an age of 18-24 and an age group of over 24) a one-way between-group MANOVA could be conducted with no violation. The dependent variables were the four alcohol items of CADS and the drinking factor scores. It was predicted that more students in the 18-24 age group would use alcohol than those in the age group over 24. The values of Hottelling's Trace indicated no group difference in age on alcohol consumption both in the F-1 group [F (4, 90) = .62, p = .65, η^2 = .03] and non-F-1 group [F (4, 63) = 1.08, p = .37, η^2 = .06]. As a result, hypothesis 5 was not supported with the F-1 group and the non-F-1 students. This result differed from the literature, in which the age group 19-24 is the most high-risk drinkers (NIAAA, 2002; Rutledge & Sher, 2001).

Regional Differences for Drinking Students

Hypotheses 6 through 8 originally proposed to test between-group differences in geographic regions representing cultural orientations such as collectivism vs. individualism. However, due to a small sample size of each region other than Asia, only comparison between Asia versus all other areas was possible (See Table 5.14 and Figure 5.6). As a result, hypotheses 6, 7, and 8 were explored as group differences in Asia vs. non-Asia on alcohol use, acculturation stress, and drinking motivations.

Table 5.14
Frequency of Geographical Regions Based on Students Who Use Alcohol

	N	Asia	Other regions	Latin America	Europe	Africa	Middle East	Oceania
Frequency								
F-1	106	83	23	12	6	3	1	1
Non-F-1	79	37	42	25	7	3	7	0
Percentage								
F-1		78.3	21.7	11.3	5.7	2.8	.9	.9
Non-F-1		46.8	53.2	31.6	8.9	3.8	8.9	0.0

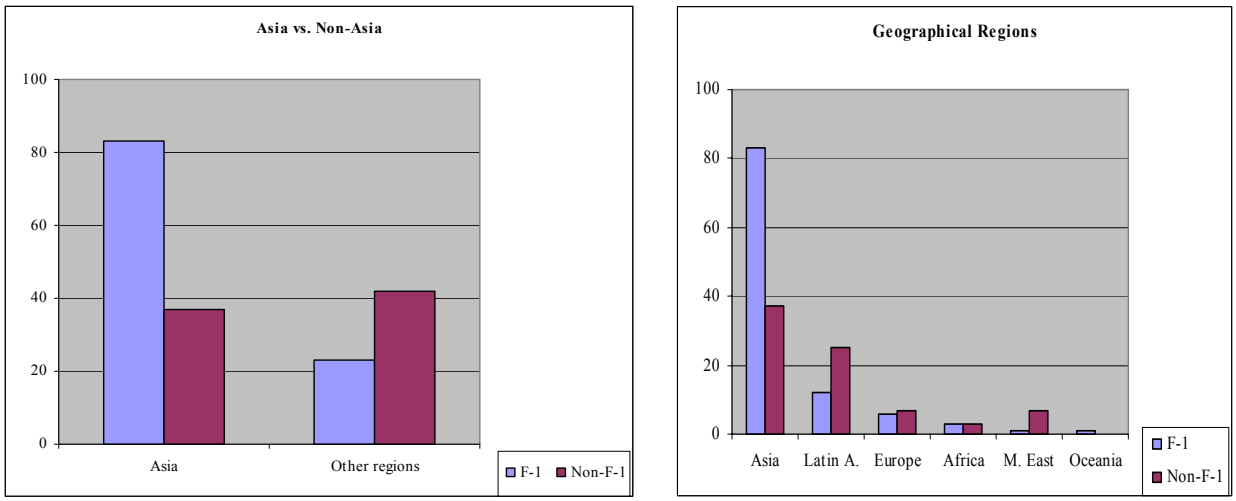

Figure 5.6. **Frequency of Geographical Regions Based on Students Who Use Alcohol.**

Asia vs. non-Asia differences in alcohol use. One-way between-group MANOVAs were performed on Alcohol use between students from Asia and those students from regions other than Asia in both F-1 and non-F-1 groups. The dependent variables were the four items of alcohol use of CADS and one drinking factor score. Preliminary tests on the MANOVA assumption confirmed that there was no violation regarding normality, linearity, univariate and multivariate outliers, homogeneity of the covariance matrices, and multicollinearity. As

suggested by Tabachnick and Fidell (2001), alpha level of .01 was set to detect a statistically significant effect for the F-1 group because the number of the non-Asian F-1 students was less than 30. Hotelling's Trace revealed no statistically significant difference between the F-1 Asian and the F-1 non-Asian students on all the four items of alcohol use as well as the drinking factor score [F (4, 90) = 1.23, p = .31, T = .06, η^2 = .05]. Similarly, Hotelling's Trace did not indicate a statistically significant difference between the non-F-1 group from Asia and the non-F-1 group from non-Asia [F (4, 65) = 1.38, p = .25, T = .09, η^2 = .08]. Therefore, separate univariate follow-up examinations were not considered.

Asia vs. non-Asia differences in acculturation stress. A between-group difference in acculturation stress was explored by a one-way between-group MANOVA. The dependent variables were the five subscales of ILS. No violation of MANOVA assumption was found in both F-1 and non-F-1 groups. Alpha level of .01 was set to detect a statistically significant effect for the F-1 group due to a smaller sample numbers than 30. As presented in Table 5.15, the value of Hotelling's Trace revealed statistically significant group differences between the group of Asian F-1 students and the group of non-Asian F-1 students [F (5, 100) = 4.86, p = .001, T = .24, η^2 = .20]. When the results for the dependent variables were investigated separately by a univariate ANOVA, statistically significant group differences were found in language difficulty (η^2 = .11) and perceived discrimination (η^2 = .08). Although in both cases, stress scores were low, the likelihood to perceive stress due to English language difficulty and perceived discrimination tended to be slightly higher for Asian F-1 students than non-Asian F-1 students. In contrast to the F-1 group, no group difference in acculturation stress was found between non-F-1 students from Asia and non-F-1 students from regions other than Asia [F (5, 73) = 1.60, p = .172, T = .11, η^2 = .10].

Table 5.15
Mean and Standard Deviation of Acculturation Stress for Students from Asia vs. Non-Asia Who Use Alcohol

Scale	Variable	N	*M*	*SD*	***F*** [a]	***p***	***ES*** [b]
ILS [c]	Language difficulty						
	F-1				13.31	< .001	.11
	Asian students	83	1.78	.49			
	Other students	23	1.36	.52			
	Non-F-1				1.22	.272	.02
	Asian Students	37	1.52	.66			
	Other Students	42	1.36	.66			
	Cultural adjustment						
	F-1				1.08	.302	.01
	Asian students	83	1.26	.46			
	Other students	23	1.15	.38			
	Non-F-1				.02	.887	.00
	Asian Students	37	.93	.35			
	Other Students	42	.95	.49			
	Academic pressure						
	F-1				.00	.951	.00
	Asian students	83	1.76	.46			
	Other students	23	1.76	.45			
	Non-F-1				4.30	.642	.05
	Asian Students	37	1.71	.53			
	Other Students	42	1.77	.55			
	Perceived discrimination						
	F-1				9.17	.003	.08
	Asian students	83	1.20	.49			
	Other students	23	.85	.51			
	Non-F-1 [d]				4.30	.042	.05
	Asian Students	37	1.01	.48			
	Other Students	42	.78	.50			
	Financial concern						
	F-1				.06	.809	.00
	Asian students	83	1.72	.63			
	Other students	23	1.79	.67			
	Non-F-1						
	Asian Students	37	1.40	.81			
	Other Students	42	1.44	.71			

Note. Alpha level was .01 for F-1 students and .05 for non-F-1 students.
[a] Univariate *F*-tests following a multivariate Hotelling *T*-tests.
[b] Effect size.
[c] Subscale scores range 0 to 3, where higher scores indicate greater acculturation stress. The original items were coded 0 = "*never"* to 3 = "*often*".
[d] Asian vs. non-Asian difference in acculturation stress for non-F-1 students was not statistically significant ($p = .172$, $T = .11$).

Asia vs. non-Asia differences in drinking motivations. One-way between-group MANOVAs were performed on drinking motivations between students from Asia and those students from non-Asia in both F-1 and non-F-1 groups. The dependent variables were the four subscales of DMQ-R. No violation was indicated by preliminary tests on the MANOVA assumption. Alpha level of .01 was set to detect a statistically significant effect for the F-1 group due to sample numbers smaller than 30. As presented in Table 5.16, the analysis, using Hotelling's Trace, revealed a statistically significant difference between the F-1 Asian and the F-1 non-Asian students on the drinking motivations [F (4, 99) = 6.00, p = < .001, T = .24, η^2 = .20]. When the results for the dependent variables were investigated separately by univariate ANOVAs, statistically significant regional differences indicated that Asian students scored higher on all four motives for drinking than non-Asian students. The largest effect size was for Conformity motives (η^2 = .19). In contrast, using Hotelling's Trace to estimate the F value indicated no statistically significant difference between non-F-1 Asian and other non-F-1 students on the drinking motives, F (4, 67) = 2.24, p = .074, T = .13, η^2 = .12. Therefore, post hoc ANOVA was not considered.

Table 5.16
Mean and Standard Deviation of Drinking Motivations for Students from Asia vs. Non-Asia Who Use Alcohol

Scale	Variable	*N*	*M*	*SD*	***F*** [a]	***p***	***ES*** [b]
DMQ-R [c]	Social motives						
	F-1				8.00	.006	.07
	Asian students	81	3.01	1.0			
	Other students	23	2.39	.85			
	Non-F-1				1.95	.167	.03
	Asian Students	34	2.79	.96			
	Other Students	38	2.47	.95			
	Enhancement motives						
	F-1				8.27	.005	.08
	Asian students	81	2.43	.98			
	Other students	23	1.77	.98			
	Non-F-1				.95	.332	.01
	Asian Students	34	2.03	.78			
	Other Students	38	1.82	1.01			
	Coping motives						
	F-1				8.10	.005	.07
	Asian students	81	2.24	.85			
	Other students	23	1.67	.85			
	Non-F-1				2.53	.116	.04
	Asian Students	34	2.12	1.09			
	Other Students	38	1.76	.82			
	Conformity motives						
	F-1				23.63	<.001	.19
	Asian students	81	2.15	.74			
	Other students	23	1.35	.46			
	Non-F-1 [d]				6.71	.012	.09
	Asian Students	34	1.94	.80			
	Other Students	38	1.45	.79			

Note. Alpha level was .01 for F-1 students and .05 for non-F-1 students.

[a] Univariate *F*-tests following a multivariate Hotelling *T*-test.

[b] Effect size.

[c] Subscale scores range 1 to 5, where higher scores indicate greater motivations for drinking. The original items were coded 1 = "*almost never/never"* to 5 = "*always/almost always"*.

[d] Asian vs. non-Asian difference in drinking motives for non-F-1 students were not statistically significant ($p = .172$, $T = .11$).

In sum, group differences in geographic region grouped by Asia and non-Asia were found in both acculturation stress and drinking motivations among F-1 students. On acculturation stress, language difficulty and perceived discrimination were slightly more stressful for Asian F-1 students than those for non-Asian F-1 students, although average stress levels were low in all cases. On drinking motivations, F-1 students from Asia scored higher particularly in terms of Conformity motives than F-1 students from non-Asian regions, and this difference was most pronounced. Regarding non-F-1 students, no group difference in geographic region based on Asia vs. non-Asia were found on either drinking motivations or acculturation stress. No group difference in alcohol use was found in the either F-1 or non-F-1 group.

Summary

Alcohol use, Acculturation stress, and drinking motivations were independently and interrelationally explored with international students attending one of the community college systems in a large metropolitan area of the northeastern region of the United States. The participants were composed of F-1 students ($N = 126$) and non-F-1 students ($N = 136$) enrolled in ESL programs. Slightly more than half of the respondents were females (54%). The majority of F-1 students were from Asia (78%), particularly from Korea (55%), while the non-F-1 student were more diverse in comparison to the F-1 students and came predominately from Asia (43%) followed by Latin America (26%). Nearly 90% of F-1 students were single (87%), living alone (8%) or with roommate(s) (29%), while 60% of non-F-1 students were single, 46% living with their parents. Over 50% of F-1 group in contrast to 24% of non-F-1 students had a bachelor's or higher degree. The average length of time living in the United States was 1.7 years for the F-1

group and 5.6 years for the non-F-1 group. Personal or family savings/income was the financial resources for over 90% of both F-1 and non-F-1 students.

The level of acculturation stress for both F-1 and non-F-1 student participants in the current study was relatively low. When compared with the ILS scores of international undergraduate and graduate student participants in the study by Misra et al. (2003), the scores of both F-1 and non-F-1 students in this study were lower. When the F-1 group was compared with the non-F-1 group in the current study, the former was more likely to have higher acculturation stress on all five stressors except academic pressure. Of these four stressors, which were cultural adjustment, language difficulty, perceived discrimination, and financial concern, the group difference was the highest on cultural adjustment.

The average international student participant in this study did not appear to be a heavy drinker. More than 15 % of the F-1 group and more than 40% of the non-F-1 group indicated no or infrequent alcohol use. However, When the F-1 students were compared with their non-F-1 counterparts, the former had more drinks than the latter regarding the number of drinks in the past year and in the past 30 days. Further, in the current study, both international student groups that did consume alcohol tended to do so in a social setting such as bar/restaurant and private parties. In contrast, among those who use alcohol, 11% of F-1 students and 17% of non-F-1 students indicated that they usually consumed alcohol alone.

Likelihood that F-1 and non-F-1 students encounter alcohol-related negative consequences explored with the 19 items of the altered CADS community college form is low. When compared with the results of the national study by Presley et al. (2004), participants in the current study generally indicated less alcohol related troubles. Between the F-1 and the non-F-1 groups, the former group seemed likely to have more negative consequences after using alcohol

than the latter group, particularly in terms of hangover, performed poorly on a test, being criticized, a memory loss, and later regretted action.

The drinking purpose for both F-1 and non-F-1 students is most likely to increase pleasant feelings responding to a social environment (Social motives) followed by to increase pleasure or excitement responding to one's inner need (Enhancement motives). The motivations for drinking to control/reduce unpleasant feelings engendered inside of the self (Coping motives) and to avoid unpleasant feelings or worry about punishment from others if decided not to drink (Conformity motives) were lower. In all cases, F-1 students tended to drink more for each of the purpose than their non-F-1 counterparts.

Regarding F-1 students who had consumed alcohol to some extent, the interrelationships among acculturation stress, drinking motives, and alcohol use were observed, yet, seemed weak. Among them, however, moderate relationships were indicated between drinking motives and alcohol use. Enhancement motives appeared to be most strongly related to all items of alcohol use followed by Social motives. Coping motives seemed least associated with each of alcohol usage examined. As a result, hypothesis 1, which predicted that Coping motives for drinking would be more strongly associated with acculturation stress, was not supported for the F-1 group. Further, hypothesis 2, which stated that Enhancement motives will be most strongly associated with higher levels of alcohol use than Social, Coping, and Conformity motives, was supported for F-1 students. Regarding non-F-1 group, similar but weaker correlation patterns were observed. The relationship between drinking motives and alcohol use appeared to be weaker than that for the F-1 students. Coping motives were not likely to be related to alcohol use, while Enhancement motives were related only to the average drinks per week.

Furthermore, hierarchical multiple regression analyses indicated that Enhancement motives were the strongest predictors for all four items of alcohol use as well as drinking factor score for F-1 students after accounting for acculturation stress. However, in the case of the non-F-1 group, the strongest predictor for each drinking motives varied; Enhancement motives predicted the average drinks per week, Social as well as Conformity predicted the number of drinks in the past year. Acculturation stress items were a better predictor for binge drinking and the number of drinks in the past 30 days.

Group differences in gender were found in terms of alcohol use and drinking motivations among F-1 students. Male F-1 students consumed more alcohol at all levels than female students, and males used alcohol for Enhancement and Conformity more than females did. No group difference in gender was found on acculturation stress for the F-1 group. For non-F-1 students, no gender differences were found in alcohol use, acculturation stress, or drinking motivations. As a result, hypothesis 4 was partially supported for F-1 students in regard to alcohol use and drinking motives of Enhancement and Conformity. Hypothesis 5, which predicted the age group of 18 to 24 would have higher levels of alcohol use than those in the age group of over 24 was not confirmed. No group difference was found in either F-1 students or non-F-1 students.

Group differences in terms of alcohol use, acculturation stress, and drinking motivations, were explored by comparing Asian vs. non-Asian students. Regarding F-1 students, results indicated no group difference in alcohol usage between Asian students and non-Asian students. However, group differences were found in acculturation stress and drinking motivations between the Asian group and the non-Asian group. The F-1 students from Asia in comparison to the F-1 students from non-Asia had more acculturation stress due to language difficulty and perceived discrimination. Further, these Asian F-1 students were motivated to consume alcohol for all four

reasons measured in the current study more than the non-Asian F-1 students. In particular, the group difference in Conformity motives was relatively large ($\eta^2 = .19$). Regarding non-F-1 students, no group differences were found in alcohol use, acculturation stress, and drinking motivations.

The results of data collected from international students enrolled in ESL programs at a community college were provided in this chapter. The results included profiles of the participants and answers for the research questions and hypotheses that particularly focused on interrelationship among alcohol use, acculturation stress, and drinking motivations. Alcohol-related negative consequences were not explored due to small samples. Group differences in visa status, gender, age, and geographical region based on Asia and non-Asia were also explored. Data were analyzed by descriptive statistics, cross-tabulation, *t*-test, chi-square, Pearson *r*, hierarchical multiple regression, and MANOVA as well as ANOVA.

CHAPTER SIX

DISCUSSION

The results of the analyses on the interrelationship among alcohol use, acculturation stress, and purposes for drinking based on international college students holding a student visa (F-1 students) and enrolled in the English as a Second Language (ESL) program in a community college are discussed in this chapter. Group differences in visa status, gender, and geographical region dichotomized between Asia vs. non-Asia are also explained. Limitations and conclusion of the study, as well as implications for counseling practice, and future research, are provided.

Interpretation of Results

Excessive alcohol use is one of the most serious problems on American campuses due to alcohol-related negative consequences that threaten physical and psychological well-being of college students. International college students comprise one of the subgroups in American higher education. Literature has identified these students as being vulnerable due to cross-cultural adjustment stress. However, little is known about the relationship between acculturation stress and alcohol use for this student population. Therefore, the goals of the current study were: 1) to examine whether or not F-1 students attending a U.S. community college use alcohol, 2) to explore interrelationships among acculturation stress, alcohol use, drinking motivations, and alcohol-related negative consequences, and 3) to assess whether or not the drinking behavior of the F-1 students is high-risk. Conducting a survey, the data were collected from both F-1 and non-F-1 students enrolled in the ESL programs of a community college in a Mid-Atlantic metropolitan area.

Alcohol Use of International Students

The results of the current study indicated that the F-1 students consumed alcohol as well as the non-F-1 students. In a breakdown, a larger proportion of the F-1 group (84%) consumed alcohol than the non-F-1 group (59%). The levels of alcohol use measured by four items (binge drinking, average number of drinks per week, the number of drinks in the past year, and the number of drinks in thee past 30 days) by these two international student groups in the current study were fewer than those of a general community college population in a national study, only 2% of which were international students (Presley et al., 2004). Less alcohol use among the participants in the current study, who were predominantly from non-European countries, is consistent with the literature on college drinking in which non-White students consume alcohol less than White students (NIAAA, 2002; O'Malley & Johnston, 2002; Presley et al., 2002). Further, although the gap of alcohol use by students between 2-year and 4-year institutions has shown a reduction (Presley et al., 1993; Presley et al., 1996; Presley et al., 2002; Presley et. al., 2004), literature has indicated that students in 2-year institutions consume alcohol less than their counterparts in 4-year institutions (NIAAA, 2002; O'Malley & Johnston, 2002; Presley et al., 2002). The findings of the current study supported this statement.

College students who live off-campus consume alcohol less than those who live on-campus, and college students who live with their families drink the least (NIAAA, 2002; Wechsler et al., 2002). Alcohol consumption by more F-1 students than non-F-1 students in the current study may be explained by difference in marital status and living arrangements. More F-1 students were single (87%) than non-F-1 students (60%). More than a quarter of the F-1 students lived with roommate(s) (29%) or alone (8%), while fewer non-F-1 students lived with roommate(s) (5%) or alone (3%). A quarter of the F-1 students lived with either their parents

(15%) or spouse (10%), while the majority of the non-F-1 students lived with either their parents (46%) or spouse (32%). The proportion of the non-F-1 students who lived with children (20%) was twice as much as the proportion of the F-1 group (10%). These different lifestyles may account for the different levels of alcohol use between the F-1 group and the non-F-1 group.

Gender difference in alcohol use was revealed among the F-1 students; male students scored statistically significantly higher than female students in all four items of alcohol use. This finding is also consistent with the literature (Doweiko, 1999; NIAA, 2002; Presley, et al, 2004; Stevens & Smith, 2001). Due to physical difference in body water content and metabolism between men and women, men can consume more alcohol than women (Stevens & Smith, 2001). In addition, alcohol is often used for male socialization in various cultures (Bennett, Campillo, Chandrashekar, & Gureje, 1998). Therefore, drinking opportunities may be more available for men than women in the F-1 group. However, among the non-F-1 students, gender difference was not found in the alcohol use examined by 4 items. It is unclear whether this is due to the tendency of the non-F-1 students, not many of who consumed alcohol regardless of gender, smaller sample sizes, or a sign of an adopting process to the American culture in which women tend to drink more than other cultures (NIAAA, 1997).

Acculturation Stress of International Students

Compared to international students attending undergraduate and graduate schools in the study by Misra et al. (2003), results of the current study indicated that the F-1 and non-F-1 students appeared to have lower acculturation stress. In the current study, all subscale scores were lower than the scores in the prior study (see Table 5.3 in Chapter 5). Different environments between general academic programs and ESL programs might have affected these different scores. Using path analyses, Misra et al. found that availability of social support

affected the level of perceived acculturation stress. According to these researchers, social supports for the international students were provided by contact with their own culture, direct family, new friends, and organizations by a local community, students, and religious affiliation within the Unites States. The stressors found among international students stemmed from academic pressure such as competition, deadlines, work responsibilities, overload, lack of resources, failure to achieve goals, and isolation from American students as well as society. These stressors were consistent with those found in the literature (see Chapter 3). In general academic programs, the environments are regulated based on American students. Therefore, unique needs for international students (e.g., language aids, longer deadlines due to language barriers, and emotional support on cross-cultural challenges, etc.) may not always be provided. As a result, international students who had less support and less social/academic skills may have felt vulnerable and threatened by such an unsupportive environment.

In contrast to regular academic programs, various support systems for ESL international students are generally available through ESL programs because they are designed to teach the English language for the population whose native language is not English. The lower acculturation stress scores for both the F-1 and the non-F-1 students in the current study appear to indicate that these international students benefited from their ESL programs as follows: first, instructors in the ESL programs are trained to work effectively with international students by teaching English and social/academic skills that are necessary for a smooth cultural transition to American systems culture. In the current study, the responses of the F-1 group to the survey questions as to whether or not the respondents agreed to the statements as "*I feel valued as a person on this campus*" and "*I feel that faculty and staff care about me as a student*" were predominantly positive; only 17% of male F-1 students indicated "*disagree*" or "*strongly*

disagree" to each of these questions (see Appendix J). The responses of the non-F-1 students to the same questions were better than those of the F-1 students. Second, upon arriving in the United States, support for international students is often provided by co-nationals or other international students (Chen, 1999; Mallinckrodt & Leong, 1992). Attending the ESL program, international students are offered an opportunity to meet co-nationals and other international students. In addition, over one-third of the F-1 students and a majority of the non-F-1 students in the current study lived with either direct or extended family members. Therefore, the students were able to receive immediate and direct support from their family. Further, the majority of F-1 participants revealed that they had someone with whom they could openly talk, usually communicating with this person at least once a week (see Appendix J). Even if the "*someone*" they referenced was not geographically close to students, technological advancement (e.g., email systems) has increased communication with family and friends from a distance. Finally, the participants in the current study also benefited from living in a region where multiculturalism is prevalent. Korean students, in particular, who were the dominant group in the current study, had the biggest advantage of living in the region because one of the largest Korean ethnic enclaves in the Unites States is located in the campus neighborhood. Given various supports from the social and school and the social environments, acculturation stress for the F-1 group appeared not to be a major threat. Therefore, despite higher scores on all subscales of ILS than those scores of the non-F-1 students, the average F-1 student in the ESL programs likely maintained good psychological well-being in their new land.

Regarding non-F-1 students, these students scored statistically significantly lower than F-1 students on all acculturation stress subscales except academic concerns. The lower scores for the non-F-1 group were probably due to their time spent in the United States, which was, on

average, more than three times longer (5.6 years) than the time spent for the F-1 group (1.7 years). Additionally, more family support was available for the non-F-1 students than the F-1 students; nearly 80% of the former students lived either with their parents or spouses, while 25% of the latter did so.

With regard to the F-1 and non-F-1 students who indicated alcohol use, no group difference in gender was found in terms of acculturation stress. However, group differences in geographical region based on Asia vs. non-Asia was found. In contrast to the F-1 students from regions other than Asia, the F-1 students from Asia had higher acculturation stress due to language difficulty and discrimination experience. It is often documented, that, except students from South Asia (Rahman & Rollock, 2004), due to different language origins from Latin, cross-cultural adjustment problems attributed to the English language are likely the most serious stressors for Asian students (Poyrazli et al., 2001; Yeh & Inose, 2003)., except students from South Asia (Rahman & Rollock, 2004). Therefore, the group difference between the F-1 and the non-F-1 students was likely due to the cultural composition of these groups and length of stay in the United States. With regard to the group difference on perceived discrimination, reflected by the social reality of the United States, non-White students probably experience discriminatory treatments. This experience could be painful and threatening, which in turn might hurt their ethnic pride and reduce their self-esteem. It is possible that the lower scores of the perceived discrimination for the non-F-1 students was due to their longer time spent in the United States as these students probably became, at least on surface, accustomed to the treatment. It is also possible that better knowledge of American values, beliefs, and behavioral norms, as well as the English language, prevented the non-F-1 students from miscommunication and contributed to reduce number of discriminatory encounters.

Drinking Motivations of International Students

International students who participated in this study most likely used alcohol for Social motives reinforcing positive affects by responding to others/environment. Following Social motives, the results indicated that students consumed alcohol for Enhancement motives, which is designed to strengthen positive affects by responding to a need from the self. Less often than Enhancement motives, although differences were minimal, the international students in this study used alcohol for Coping motives, which is to control/reduce negative affects by responding to the need from the self. Conformity motives, which is to control/reduce negative affects by responding to situations in which the individual decides not to drink, was the least common reason for using alcohol. As shown in Appendix K, with regard to the rank order of the drinking motives, the pattern that was demonstrated by the participants in the current study was generally the same as those of the studies conducted by Cooper (1994) and Theakston et al. (2004). According to Cooper, Social motives are considered as normative drinking behavior that is often observed in a social setting. Cooper also stated that these motives generally do not lead to high alcohol use or alcohol-related negative consequences, although inconsistent findings exist (Read et al., 2003). Given lower levels of alcohol use and Social motives as the leading drinking purpose, the likelihood of risky drinking behavior by the average F-1 and the average non-F-1 student is probably low.

Group difference by gender was found on drinking motives among the F-1 students who consumed alcohol. Males were more likely than females to drink for Enhancement and Conformity. On Enhancement, it is possibly explained that, in general, various cultures grant more flexibility for males to consume alcohol than for females (Bennett et al., 1998). Further, alcohol is often used as a mediator for male bonding far more than female bonding (Bennett et

al., 1998; Matsuyoshi, 2001; Kwon-Ahn, 2001). Because of this normative practice, males may sometimes encounter a situation that requires them to display their group loyalty, demonstrated in part through alcohol consumption. Cooper (1994) explained that Conformity motives are negatively related to drinking at bars and at homes, but positively related to drinking at parties, where group pressures to conform, perceived group norms are probably stronger. Furthermore, this tendency might be stronger for the F-1 group because the majority of the members were from Asia, where group loyalty is one of the important value orientations (Triandis, 1994; Triandis, et al., 1990; Uba, 1994). As a result, male F-1 students might use alcohol for the Conforming purposes more so than their female counterparts.

The construct of Conformity motives appears to be represented by group-oriented behavior. This behavioral orientation is more normative in collectivistic cultures, in which a culture shapes an interdependent self rather than an independent self. An individual with an interdependent self primarily determines his or her behavior by referring to social roles and group expectations within the cultural context (Triandis, 1994; Triandis, et al., 1990). According to Yeh and Hwang (2000), insisting the individual's own need tends to be viewed as immature and selfish in collectivistic cultures. This behavior would be perceived as a threat for group solidarity, therefore, group punishment by censure and isolation might be followed. To avoid these retributions, an individual is willing to alter his or her need and behaves in accordance with the group norm (Cross, 1995). As indicated in the study by Cross, this behavioral tendency is more observed among Asian students than American students. In a social setting, an individual with a strong sense of collectivistic cultural orientation may feel inappropriate if he or she does not drink when everyone else does. This individual may also feel inappropriate if he or she declines a request to drink by someone particularly older or with a higher social status.

According to Cross (1995), an individual with an interdependent self perceives more stress than those who are more individualistic. To extend this statement, results of MANOVA, in the current study, indicated a statistically significant group difference in Conformity motives between Asian students and non-Asian students who were also predominantly from collectivistic cultures. The F-1 students from Asia were more motivated to use alcohol for Conformity reasons than those from non-Asia. Statistically significant group differences in Conformity motives was not found between the non-F-1 students from Asia and those from non-Asia. One explanation might be that non-F-1 students have been undergoing cognitive and behavioral change while adapting to the American culture more so than those of F-1 students.

Meanwhile, as stated by Cooper (1994), and Cox and Klinger (1988), drinking behavior is complex and involves a variety of factors. Stewart and Devine (2000) and Theakston et al. (2004) explained that drinking motives and personality correlated with each other. An antecedent study with general American college students indicated that negative reinforcement motives including Conformity and Coping motives were statistically significantly correlated with significantly high neuroticism and low extraversion measured by the Revised NEO Personality Inventory (Costa & McCrae, 1992). The research by the latter researchers was conducted with college students, more than half of whom were of Asian descent, found a stronger relationship between Conformity motives and high emotional stability and low intellect/imagination measured by the International Personality Item Pool (Goldberg, 1999). Discussion about personality and drinking motives is beyond the scope of the current study. However, it is important to acknowledge that drinking motives could be related to personality as well as cultural orientations.

Alcohol-Related Negative Consequences of International Students

The results of the current study indicated less negative consequences due to alcohol use by the F-1 students than those by the general community college students in the national study (Presley et al, 2004). Further, less alcohol-related problems were reported by the non-F-1 students than the F-1 students. These results appear to be reflecting lower alcohol use for both the F-1 group and the non-F-1 group, sincebecause excessive alcohol use is considered to be strongly associated with alcohol-related negative consequences for the college population (NIAAA, 2002). In addition, according to Cooper (1994), drinking motives for Social, which both the F-1 and non-F-1 groups scored the highest, are least associated with alcohol-related problems. However, even though alcohol use by these international students was less problematic as a group, there were individuals who underwent serious predicament due to alcohol use. These individuals may be overlooked because they belong to a group known for less alcohol use. Therefore, continuous research on international students is necessary. Overall, as a group, both the members of F-1 and non-F-1 groups were less likely to experience negative consequences due to alcohol consumption.

Interrelationships Among Alcohol Use, Acculturation Stress, and Drinking Motivations for International Students Who Use Alcohol

F-1 students. Regarding interrelationships among alcohol use, acculturation stress, and drinking motivations for the F-1 students, moderate to strong internal correlations, which are statistically significant, were found between each of the alcohol use variables (ranging from r = .58 to .76) and drinking motivation subscales (ranging from r = .51 to .76). However, not all internal relationships of acculturation stress subscales were statistically significant. Even when the relationships were statistically significant, they were moderate to weak (r = .22 to .51). It is possible that this tendency is reflecting this group's lower acculturation stress. Among the

acculturation stress subscales, the correlations that involved cultural adjustment, perceived discrimination, and language difficulty appeared to be stronger than the correlation that involved both academic and financial concerns. These observations may indicate that as F-1 students increase social and language skills, they may perceive less discrimination. Further, relatively weak to moderate relationships were found between perceived discrimination and negative reinforcement motives, which are Coping and Conformity motives. As an inverse relationship was observed between acculturation stress due to cultural adjustment and Social motives, in addition to language and social skills, developing social networks that provide supports may reduce the use of alcohol when dealing with unpleasant feelings.

On the correlations of alcohol use and drinking motives, both frequency and quantity of alcohol use were more strongly related to Enhancement motives. This tendency was confirmed by the results of hierarchal multiple regression analyses, in which Enhancement motives were the strongest predictor for drinking reasons among the F-1 students after accounting for acculturation stress. The relatively moderate correlation between Social motives and alcohol use may be reflected by the purpose of drinking for this group, which was to increase pleasant feelings in a social setting. Further, although statistically significant correlations were revealed between each variable of Coping and Conformity motives and alcohol use, weaker associations appear to indicate that fewer F-1 students consume alcohol to deal with negative feelings. However, according to Cooper (1994), Coping and Conformity motives are strongly related to alcohol-related negative consequences. Therefore, despite less experience of negative consequences due to alcohol as the F-1 group, individual F-1 students who score higher at Coping and Conformity motives might be at a high risk. These students appear to have a learned behavior in which alcohol is used to control unpleasant emotions. Less adequate language and social skills, as well

as poor support systems, may increase potential risks resulting in the employment of an emotion-focused coping strategy.

Overall, correlations among alcohol use, acculturation stress, and drinking motives indicated that it is unlikely that the F-1 students, on average, engage in high-risk behaviors due to alcohol use. Supportive on- and off-campus environments may serve as protective factors. In addition to facilitating these international students to develop support systems, language and social skill enhancement may reduce potential alcohol-related risks for this group.

Non-F-1 students. All internal relationships of alcohol use (ranging from r = .28 to .65), drinking motivations (ranging from r = .52 to .76), and acculturation stress (ranging from r = .26 to .54) except one between academic pressure concerns and perceived discrimination, were statistically significant. In contrast to the findings on F-1 students in which financial concerns was least correlated to other stress variables, stronger correlations were found across financial concerns and language difficulty for non-F-1 students. Although descriptive statistics revealed that language difficulty was less stressful than academic concernspressure and financial concerns for non-F-1 students, stress due to these concerns could be attributed to insufficient language skills. It is possible that, among non-F-1 students, those who have less command of the English language may have more financial concerns associated with unemployment or unmet job advancement due to a required advanced English speaking proficiency at most job sites. Although non-F-1 students, in contrast to F-1 students, are legally warranted full financial activities similar to American citizens, as recent immigrants or children of immigrants, these students could be more financially vulnerable than F-1 students. Many F-1 students are from families that are able to provide financial support for their children. In the current study, 69% of the F-1 students received financial resources from their families in comparison to their non-F-1

counterparts, 39% of whom were provided financial supports by their families. Further, less financial support from family for the non-F-1 group might be influenced by the American culture, which emphasizes financial independence from parents. Additionally, higher correlations that involved financial concerns could be related to social responsibilities for non-F-1 students, 36% of whom were married and many of whom had children.

Language difficulty was moderately correlated with other stress variables in both the F-1 and non-F-1 groups. As found in earlier research, a lack of adequate English skills was one of the strongest predictors for stress of international students (Poyrazli et al., 2001; Yeh & Inose, 2003). As a common language, English must be learned to fully function in the American society. Further, one's level of English skills may directly affect a level of self-confidence. Language issues are probably more stressful for the non-F-1 student than their F-1 counterparts, since the majority of these students were simultaneously taking regular courses while enrolled in the ESL program. As a result, these students probably experienced more pressure from additional course work other than the ESL program and felt an urgent need to improve their language skills.

Of five statistically significant correlations between acculturation stress and drinking motives, three of them were observed between Conformity motives and each of language difficulty, academic concerns, and financial concerns. Similar to the finding of the F-1 students, individuals who have interdependent value orientations could have more challenges from adapting to the American culture. Meanwhile, personality may play a role in the relationships in addition to collectivistic cultural orientations. Regarding the correlation between alcohol use and acculturation, no statistically significant relationships were indicated revealed for the non-F-1 group. Similar to the results on F-1 students, these findings consistently indicated less

relationship between alcohol use and acculturation stress for non-F-1 international students who participated in the current study.

Regarding the correlation between alcohol use and drinking motives, less than half were statistically significant. These relationships were weak and observed in the relationships involving positive drinking motives (i.e., Social and Enhancement motives), which are considered to be less related to alcohol-related problematic negative consequences than negative drinking motives (i.e., Coping and Conformity motives).

Limitations of the Current Study

There are limitations of the current study that need to be taken into account when considering the results. First, random sampling methods were not used, therefore, generalization of results may be limited. Second, survey instruments were written in English. This might have limited comprehension levels among some participants. Third, data were self-reports. Answers by this method may not always accurately reflect activities of respondents. Fourth, the data were collected in one of the most culturally diverse regions of the United States. The level of acculturation stress may be different for international students in regions where such ethnic composition is scarce. Fifth, as stated by Cooper (1994) and Cox and Klinger (1988), individuals use alcohol for a variety of reasons. In the current study, dinking motivations other than the four reasons measured by the DMQ-R were excluded. Sixth, only acculturation stress was measured. Stress attributed to other factors was excluded. Seventh, cultural perspectives represented as collectivistic cultural orientation/the interdependent self and individualistic cultural orientation/the independent self were not measured by a psychometric measurement. Thus, dichotomous grouping based on geographic region (Asian vs. non-Asian) may not accurately

reflect the cultural orientation of individual participants. Finally, the subsample sizes were not adequate to test a few of the proposed hypotheses.

Conclusion of the Current Study

The results of the current study indicated that drinking behavior of F-1 students enrolled in the ESL programs at a community college is unlikely problematic. Despite drinking practice, this international student population does not appear to either consume much alcohol or experience many alcohol-related negative consequences. Supportive environments are considered to be one of the protective factors preventing these F-1 students from alcohol misuse.

The literature (see Chapter 3) has indicated that international college students attending U.S. higher education are more vulnerable due to cross-cultural adjustments. Psychological well-being of international students is considered to becould be unstable, particularly if these students undergo cultural adjustments with insufficient support systems and inadequate social skills. Lazarus and Folkman (1984) stated that lack of resources, including social support and problem solving skills, leads to emotion-focused coping strategies, including alcohol use, to control unpleasant emotions. Drinking to cope with negative affect is considered to be most strongly related to problematic negative consequences (Cooper, 1994). Coping motives are often observed among high-risk populations such as intercollegiate athletes (Martens, et al, 2003b). Contrary to these findings in antecedent research, the results of the current study did not reveal that F-1 students misused were vulnerablealcohol. These findings could be due to protective factors attributed to the nature of community colleges that are generally known as providing fewer alcohol use opportunities in contrast to 4-year colleges, the ESL programs where social supports for international students are offered, and living arrangements in which close family

contact are available, as well as the local region that is culturally diverse. As a result, the F-1 students were, on average, probably able to maintain their psychological well-being even in an unfamiliar cultural environment.

However, moderately strong correlations were observed among acculturation stress due to cultural adjustment, language difficulty, and perceived discrimination. Further, language difficulty and perceived discrimination were correlated to either or both Coping and Conformity motives that represent negative reinforcements responding to the inner self (Coping) and others/environments (Conformity). Additionally, these tendencies appeared to be stronger when regional group differences were explored in regard to acculturation stress and drinking motives between F-1 students from Asia vs. F-1 students from other regions. These results may be explained by cultural distance between Asia and the United States, where language, values, beliefs, and behaviors are less in common in comparison to a cultural distance between other geographical regions and the United States (Babiker et al., 1980; Cross, 1995; Triandis, 1994; Triandis et al., 1990; Uba, 1994). Even though these correlations were moderate, the relationships might be a sign for future risky drinking behavior when these F-1 students move to a new environment upon completing the ESL program and when support networks in the new environment are weak.

The patterns of interrelationships among alcohol use, acculturation stress, and drinking motivation for the non-F-1 students were similar to those for the F-1 students. However, the correlations were consistently weaker for the non- F-1 students. The proportion of the non- F-1 students who indicated no or infrequent alcohol consumption was 41%, and 16% for the F-1 students. Although Social motives were ranked as the most common reason for drinking among the non-F-1 students and the F-1 students, the non-F-1 students were less motivated to do so.

Non-F-1 students appeared to have experienced fewer negative consequences due to alcohol use than F-1 students. In addition to the same protective factors as explained for the F-1 students, these tendencies are probably accounted for by their responsibilities as married individuals and as parents.

Levels of acculturation stress for the non-F-1 group was lower than among the F-1 students. This result was probably attributed to the amount of time non-F-1 students spent in the United States, which enabled them to acquire better English and social skills. Additional support systems, especially from family, may have been more available to the non-F-1 students because many of them lived with their parents or spouses. In contrast, the majority of F-1 students departed from family members when they moved to the United States. The results indicated no statistically significant correlations between alcohol use and acculturation stress for the non-F-1 students. However, despite lower acculturation stress, all acculturation stress subscales, except one between academic pressure and perceived discrimination, were statistically significantly correlated with each other. Because academic pressure for international students is often associated with language difficulty, it is possible that if language skills were to increase, academic concerns would decrease. Consequently, English skill improvement would also help them to increase other opportunities in the United States, such as employment.

Overall, the results of the current study indicated that both F-1 and non-F-1 students enrolled in the ESL programs did not appear to either use alcohol excessively or experience negative consequences as a result of drinking. This tendency may be partially explained from the supportive environments where these international students studied. Despite the absence of no statistically significant correlations between alcohol use and acculturation stress, with the exception of one correlation (inverse relationship between drinks in the past 30 days and cultural

adjustment) for the F-1 group, the results revealed drinking patterns that might be indicative of problematic behaviors. These patterns were represented by statistically significant association between Coping and Conformity drinking motives and acculturation stress due to language difficulty, cultural adjustments, and perceived discrimination for the F-1 students and by statistically significant relationship between Coping and Conformity drinking motives and acculturation stress due to language difficulty, academic concerns, cultural adjustments, and financial concerns for the non-F-1 students. The patterns were stronger for the F-1 students from Asia than the F-1 students from regions other than Asia. These tendencies may imply that improving English language skills and social skills appropriate in the American culture would increase psychological well-being of these students more and decrease opportunities in which these students use alcohol to deal with unpleasant feelings.

Implication for Counseling

There are several counseling implications geared toward international students attending an ESL program. The following suggestions seek to assist mental health professionals who intend on working with this target population:

1. The counselor needs to be aware that how self-perceived English language skills influence the self-esteem of students. Even if the counselor deems that the international student has good English skills, exploring their subjective perceptions about language skills and subsequent stress might be helpful. Improving language skills may facilitate students to acquire more social skills, resulting in a smoother transaction into the American culture. If students suffer from stress due to language barriers, counselors can help them find efficient ways to improve their language skills while understanding their

challenge to overcome the language gap. Language acquisition is not achieved over night; therefore, counselors need to be patient and continually encourage the student to strive for improvement.

2. The counselor needs to be aware that the needs of F-1 students and non-F-1 students are different. Except for academic pressure concerns, F-1 students scored statistically significantly higher for all acculturation stress variables. Nonetheless, despite lower scores on language difficulty for the non-F-1 students, stress due to language difficulty was more strongly related to other acculturation stress items than for the F-1 students.
3. Despite fewer alcohol-related negative consequences experienced use as a group, there are individual F-1 and non-F-1 students who have encountered these difficultyproblems. Due to their brief time spent in the Unites States, F-1 students in particular may not be aware of different drinking norms and a degree of social tolerance on drinking behavior between their home countries and the United States. Therefore, the counselor needs to educate the students about normative drinking behavior in the United States, what constitutes alcohol use, alcohol abuse, and alcohol dependence, as well as negative consequences due to drinking. Providing alcohol awareness programs would be a beneficial prevention effort. Additionally, counselors need to help students develop support networks.
4. Although abusive drinking patterns were not identified in the current study, detecting potential at-risk students is an important prevention effort. Literature suggests that international students are reluctant to seek help in counseling. As alcohol-related problems tend to be viewed as weak willpower, the student may be ashamed to admit his or her drinking problems. However, if students do seek help, counselors need to help

them reduce the self-perceived stigma and offer their understanding toward the cross-cultural challenges to the students.

5. Although this suggestion should be interpreted cautiously, international students from Asia may benefit from becoming more assertive so that they do not succumb to the temptations pressure surrounding alcohol consumption. Assertive training programs may prove more beneficial for Asian F-1 students because they are more motivated to drink for Conformity reasons than students from other regions. Controlling one's own desire and conforming to group decisions are normative values within many Asian cultures. However, Conformity motives were more correlated to acculturation stress subscales than other drinking motives. Therefore, practicing congruence with needs of the self and to express it assertively may help students to avoid unwanted alcohol drinking. Even if assertiveness is perceived inappropriate when interacting with co-nationals, acquisition of assertive skills may increase better relationships with Americans. By teaching alternative behavioral options, counselors may help students to establish their sense of multiculturalism.

Implication for Research

The current study is among the first to examine the interrelationships among alcohol use, acculturation stress, drinking motivations, and alcohol-related negative consequences on F-1 students in higher education. To understand these students' alcohol related behaviors and cross-cultural challenges, research similar to the current study is necessary. Suggestions for future research should include:

1. A replication of the current study with F-1 international students attending 4-year institutions and a graduate school within a college town setting. The experience of those international students may differ from the ESL F-1 students attending a 2-year college in a culturally diverse metropolitan area. One of the challenges in replicating the current study surrounds data collection without inconsistent responses on quantity and frequencies of alcohol use. Targeting only the population that drink moderate and excessive amounts may prevent this problem from surfacing. However, the sample size might be compromised. Further, obtaining data to accurately reflect the level of alcohol use might prove to be difficult because individuals who overuse alcohol may not report with precision, or may not participate in the survey at all. Underage college students who consume alcohol may not respond to the survey and may provide inaccurate answers.
2. A replication of the current study utilizing psychometric measurements on cultural orientation. Understanding cultural orientations of individual international students is important. Traditionally, these orientations are explored by country, ethnicity, and/or geographical regions. Further, these categories could be reclassified into two dichotomous cultural orientations such as individualistic vs. collectivistic cultures or the independent self vs. the interdependent self. Measuring individualized intrinsic cultural orientations would provide a better understanding of interactions among alcohol use, acculturation stress, and drinking motives.
3. A replication of the current study with an additional psychometric measurement that incorporates coping skills. As stated by Lazarus and Folkman (1984), if alcohol consumption is an emotion-focused coping strategy, international students who use

alcohol for Coping motives would score higher on the emotion-focused coping strategy and score lower on the problem-focused coping strategy.

4. A replication of the current study with an additional psychometric measurement that incorporates personality and cultural orientation. This design will examine the construct of Conformity motives and assess whether it is attributed to particular personality traits such as neuroticism, or cultural orientations (e.g., collectivistic or interdependent).
5. A replication of the current study with a longitudinal research design will provide more comprehensive insight into this topic.
6. A study to examine which Drinking Motivation Questionnaire, a three-factor model (DMQ) or a four-factor model (DMQ-R), is more appropriate for culturally diverse populations.
7. Include questions about school policies on alcohol abuse and determine international students' awareness of them. Also, determine international students' knowledge about laws on alcohol use in the United States as well as where and how they learned about them.
8. It is known that many Northeast Asians respond to any alcohol consumption with a flushing reaction. It is possible that such reaction could interact with Conformity motives in non-expected ways. This, along with conformity to laws for underage students, could be investigated.
9. Finally, any study with international students should treat F-1 and non-F-1 groups separately. Although the findings on each group in the current study indicated similar, yet broad patterns, group differences were revealed in many tests. By lumping these students together, factors such as acculturation stress, support systems, life styles, and social skills

that contribute to the differences between these groups may be overlooked. To identify the different needs of each group would help counselors increase their competence in working with various international college students.

Summary

The results of the current study were discussed in this chapter. Given low acculturation stress and alcohol use as well as infrequent alcohol-related negative consequences, drinking behavior of F-1 and non-F-1 student groups is unlikely to be problematic. The purpose of drinking for these international student groups was mostly to increase pleasant feelings with others, which was considered to be least associated with negative drinking consequences. There was no correlation between acculturation stress and alcohol use for either groups, except for one negative correlation between cultural adjustments and number of drinks in the past 30 days for the F-1 group. In addition to a tendency that school environments of 2-year institutes provide fewer drinking opportunities than 4-year institutes, these findings may be accounted for by support systems offered to international students through ESL programs, living arrangements, and close contact with family and/or friends.

Correlations between acculturation stress and drinking motives to cope with unpleasant feelings (i.e., Coping and Conformity motives) may have manifested in response to the language barriers faced by both F-1 and non-F-1 groups. Increasing English language skills would help both groups enhance their overall cross-cultural adjustment by decreasing the stress that accompanies perceived discrimination among F-1 students, and by confronting the academic and financial concerns experienced by non-F-1 students.

Although both F-1 and non-F-1 students demonstrated similar patterns in acculturation stress, alcohol use, and drinking motivations, group differences were found in each of these areas. In comparison to non-F-1 students, F-1 students felt more acculturation stress, consumed more alcohol in the past year and in the past 30 days, and were motivated to drink more in all four drinking motives, which are Social, Enhancement, Coping, and Conformity. These tendencies probably indicate that F-1 and non-F-1 students may undergo different stages of cross-cultural adjustment to the United States. Therefore, in a study on acculturation stress, alcohol use, and drinking motivations of international students, separate examinations of these two groups may avoid leading to inaccurate conclusions. Moreover, gender group difference in alcohol use was only found among F-1 students; more males consumed alcohol than females. There was no Asian vs. non-Asian group difference in alcohol use for either the F-1 or non-F-1 group. However, Asia vs. non-Asia group differences in acculturation stress and drinking motives were found for the F-1 group; F-1 students from Asia felt more stress due to language barriers and perceived discrimination than those from other regions, and were motivated to drink by all four motives, particularly Conformity motives. The stressors may be accounted for by the cultural distance between Asian home countries and the Unites States, as well as a brief time spent in the American society, while Conformity motives are attributable to group loyalty emphasized in Asian cultural values. Limitations within the current study and counseling implications, as well as suggestions for future research were provided.

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