Stress and Coping Model of Alcohol Use among Treatment-seeking Asian Americans

Sharon Hsin Hsu

A dissertation

submitted in partial fulfillment of the

requirements for the degree of

Doctor of Philosophy

University of Washington

June 2014

Reading Committee

Mary Larimer

William George

Kevin King

Program Authorized to Offer Degree:

Psychology

Table of Content

1.0.0. Abstract

Alcohol use and related problems among Asian Americans (AAs) may result from an interplay of culture, genetics, stress, and historic experience. Adequately examining these factors and their relationships requires a theory-based, culturally-relevant model. The stress and coping model of substance use (Wills & Shiffman, 1985) is a promising framework for examining the etiologies of alcohol use. This study evaluated this classic model and a culturally-relevant model among treatment-seeking AAs with alcohol use disorders. We hypothesized that adding culturally-relevant predictors (i.e. acculturative stress, family conflicts, somatic symptoms, avoidance and detachment coping style) to the classic stress and coping model would enhance the predictability of the classic model. Participants (N = 92) were recruited from a community mental health agency and the majority of participants were foreign-born males with low socioeconomic status, who sought treatment due to a legal mandate. Path analyses with Maximum Likelihood estimation were used. The lack of association between alcohol use and related problems speaks to the role of culture in perceptions of alcohol use related problems, and the importance of prevention research for AAs. Findings offer implications on etiology, course of illness, consequences, and expectations for treatment.

Keywords: alcohol, stress, coping, Asian Americans

Stress and Coping Model of Alcohol Use among Treatment-seeking Asian Americans

2.0.0. Introduction

Asian Americans are a fast-growing racial group in the United States, and the population will continue to increase in the next few decades. According to the 2000 Census report (Barnes & Bennett, 2002), approximately 11.9 million people, or 4.2 percent of the total population, reported being Asian alone (3.6%) or in combination with one or more other races (0.6%). By 2050, the projected size of the Asian population in the US will reach 40.6 million individuals, comprising 9% of the total population (U.S. Census Bureau, 2009).

Asian Americans are diverse in ethnicity (Department of Health and Human Services (DHHS), 2001). The term "Asian" refers to people having origins in any of the original peoples of the Far East, Southeast Asia, or the Indian subcontinent (e.g., Cambodia, China, India, Japan, Korea, Malaysia, Pakistan, the Philippine Islands, Thailand, and Vietnam). The Asian population is comprised of many groups who differ in language, culture, length of residence in the U.S., and demographic variables such as educational achievement (Barnes & Bennett, 2002). For instance, while some of the Asian groups (e.g., Chinese and Japanese) have been in the U.S. for several generations, other groups (e.g., Hmong, Vietnamese, Laotians, and Cambodians) are comparatively recent immigrants. With regard to education, based on the 2007 American Community Survey, 68 percent of Asian Indians 25 and older had a bachelor's degree or more education, and 36 percent had a graduate or professional degree. The corresponding numbers for Vietnamese were 27 percent and 8 percent, respectively (U.S. Census Bureau, 2009).

Asian population growth was faster than that of the total U.S. population between 1990 and 2000 (Barnes & Bennett, 2002). The population of individuals who reported solely Asian

ethnicity increased by 48% between 1990 and 2000. Including all those who report some Asian heritage (alone or in combination with other ethnicity), the population increased by 72%. In comparison, the total U. S. population grew by only 13% from 1990 to 2000. Additionally, between 2008 and 2050, the Asian population is expected to increase by 153%, indicating a strong growth relative to a 44% projected increase in total U. S. population (U.S. Census Bureau, 2009). Taken together, the Asian population is one of the fastest growing populations in the U.S. With an increase in population, Asian American mental health has become an increasingly important issue in our society.

3.0.0. Alcohol Use among Asian American Adults

Alcohol use among Asian American adults is a complicated issue. Epidemiological research based on a national sample has indicated lower levels of alcohol consumption and a lower prevalence of alcohol disorders among Asian Americans, relative to other racial/ethnic groups (Bolen, Rhodes, Powell-Griner, Bland, & Holtzman, 2000; Grant, et al., 2004; Makimoto, 1998; Stinson, et al., 1998). For instance, the most recent study (Grant et al., 2004) reported that Asian Americans had a lower prevalence of both alcohol consumption (2.1%) and alcohol dependence (2.4%), relative to the general population (4.7% and 3.8%, respectively). Excluding Asian Americans who have never tried alcohol, rates of alcohol dependence were similar between Asian Americans and Caucasians in an epidemiology study (Sakai, Ho, Shore, Risk, & Price, 2005).

Studies have shown heterogeneity in patterns of alcohol consumption among Asian Americans, and suggest that alcohol use disorders are an important and increasing concern in some Asian American subgroups (Chae et al., 2009; Chi, Lubben, & Kitano, 1989; Grant et al., 2004; Makimoto, 1998; Parrish, 1995; Varma & Siris, 1996; Zane & Kim, 1994). For example,

research studying Asian sub-populations has found that a large proportion of Japanese Americans were classified as heavy drinkers, followed by Korean Americans and Chinese Americans (Chi et al., 1989). Southeast Asians (Vietnamese, Cambodians) also appear to be at higher risk for heavy drinking than other Asian groups (Makimoto, 1998; Varma & Siris, 1996). One study examined prevalence of alcohol use among Vietnamese refugees and found that rates of drinking among men were similar to that in the general population (Jenkins, McPhee, Bird, & Bonilla, 1990). Specifically, 67% of Vietnamese men (N = 116) had at least one drink in the past month and 35% engaged in "binge" drinking, defined as having consumed 5 or more drinks on at least one occasion during the past month. These figures were comparable to the general population based on a large-scale survey conducted by the Centers for Disease Control and Prevention (66% and 22%, respectively). Among Vietnamese women, however, current alcohol use (18%) and "binge" drinking rate (0%) were much lower than among Vietnamese men and the general U.S. population.

Additionally, research based on longitudinal data indicates the prevalence of DSM-IV alcohol abuse (i.e. a maladaptive pattern of substance use manifested by recurrent and significant adverse consequences associated with the repeated use of alcohol during a 12-month period) among Asian Americans increased twofold from 1990/1991 to 2000/2001, and while alcohol dependence decreased or remained stable for all other racial/ethnic groups, the prevalence increased among Asian Americans (Grant et al., 2004). Rate of DSM-IV alcohol dependence (i.e. a cluster of cognitive, behavioral, and physiological symptoms indicating that the individual continues to use alcohol in spite of experiencing significant problems related to alcohol use during a 12-month period) among Asian males of the same age group also increased significantly over the 10-year period (Grant et al., 2004). Young adult Asian males have been identified as an

emerging high-risk group for developing alcohol use disorders (Grant, et al., 2004). Furthermore, recent statistics have shown that the rate of drug treatment admissions for the Asian and Pacific Islander population 12 years and older increased by 25% (from 13,400 to 16,700) from 2000 to 2002 (Substance Abuse and Mental Health Services Administration (SAMHSA), 2005). Taken together, findings from these studies highlight the increasing need to understand the etiology and outcomes of alcohol use in Asian American adults in the community.

In contrast with the amount of information available on the drinking patterns and alcohol-related problems of ethnic minority populations, research on alcoholism treatment with minority groups is very limited (Caetano, 1993). Specifically, information on alcoholism treatment is especially lacking for Asian Americans (Galvan & Caetano, 2003). We found one study examining alcohol and drug use motivation among 50 Southeast Asians who sought addiction treatment (D'Avanzo, 1997). Available research has primarily focused on examining treatment utilization (National Asian Pacific American Families Against Substance Abuse, 2001; SAMHSA, 2005), service gaps (Chow, 2002), and treatment retention (Vendetti, McRee, Miller, Christiansen, & Herrell, 2002). For instance, surveying 42 private non-profit agencies providing service for the Asian American and Pacific Islander community, case management and outpatient counseling are the two most commonly provided services; the lack of continuous care is a major gap in service delivery. While this type of information is inarguably valuable, the etiologies and outcomes of alcohol use and related problems in Asian Americans who seek treatment have not been examined and deserve our attention now since examination of these issues will inform the development of prevention and intervention programs that are suitable for this population.

4.0.0. Stress and Coping Model of Alcohol Use

It has been suggested that alcohol use and related problems among Asian Americans result from an interplay of culture, genetics, stress, and historic experience (Caetano, Clark, & Tam, 1998). Adequately addressing these factors and their relationships requires a solid theoretical framework. The stress and coping model of substance use, proposed by Wills and Shiffman (1985) is a promising framework that can be used to examine the etiologies and outcomes of alcohol use among treatment-seeking Asian Americans. Please see figure 1 for the theoretical model.

This conceptual model is based on two chief postulates. The first postulate is that substances may be used as a coping mechanism for the purpose of reducing negative affect and increasing positive affect. This strategy may maintain the appropriate balance between demands from the environment and resources available to fulfill these demands. This notion has been supported by research on affect regulation theory (see Cappell & Greeley, 1987 for a review), drinking motives (e.g., Cooper, Russell, & Frone, 1993; Cooper, Russell, & George, 1988; Cooper, Russell, Skinner, & Windle, 1992; Pearlin & Radabaugh, 1976), and the Tension Reduction Hypothesis (e.g., Abbey, Smith, & Scott, 1993; Greeley & Oei, 1999; Holahan, Moos, Holahan, Cronkite, Randall, 2001; Khantzian, 1974; Sher, 1987). Collectively, research has suggested that: (1) There is a positive relationship between stress and negative affect (Barrett, 1979; Bebbington, Sturt, Tennant, & Hurry, 1984; Brown & Harris, 1978; Costello, 1982; Faravelli & Pallanti, 1989; Finlay-Jones & Brown, 1981; Paykel, 1978; Surtees et al., 1986); (2) There is a positive relationship between negative affect and alcohol use (Aneshensel & Huba, 1983; Berger & Adesso, 1991; Birnbaum, Taylor, & Parker, 1983; Haack, Harford, & Parker, 1988; Hartka et al., 1991; Parker, Parker, Harford, & Farmer, 1987; Wilsnack, Wilsnack, & Klassen, 1984); (3) Individuals consume alcohol in order to regulate or relieve negative affect.

Thus, negative affect mediates the relationship between stress and alcohol use (Pierce, Frone, Russell, Cooper, 1994); and (4) Tendencies to drink to cope with negative emotions are positively related to alcohol use and related problems (Cooper et al., 1993; Cooper et al., 1988; Cooper et al., 1992). Overall, negative affect and drinking to cope have been established as constructs meditating the relationship between stress and alcohol involvement. See Figure 2 for a path model predicting alcohol use and related problems.

The second postulate of Wills and Shiffman's model is that it is useful to distinguish between stress-coping skills and temptation-coping skills. Stress-coping skills refer to cognitive or behavioral responses relevant to dealing with stress evoked by negative life events and enduring strains; temptation-coping skills are defined as responses used to cope with temptation for substance use that occurs in particular situations. In this study, we focused on examining stress-coping skills.

In outlining our model, we will begin by discussing each of the key constructs in this model: Stressful life events, negative affect, and alcohol use coping motives. We will then describe each construct and its relationship to alcohol use and related problems and mediation relations hypothesized in the stress and coping model.

4.1.1. Stressful Life Events and Alcohol Use in the General Population

Researchers have studied the link between stress and alcohol consumption since the inception of the Tension Reduction Hypothesis (Conger, 1956). In the literature on stress and substance use, psychological stress has been construed in terms of three levels of stressors (Wills & Shiffman, 1985). The first level represents facing major life events, such as death of a loved one (Dohrenwend & Dohrenwend, 1981). These events typically happen suddenly, require major readjustment in lifestyle, and usually contain an initial period of shock followed by a period of

graduate readjustment. The second level of stress represents enduring life strains, such as difficulties in occupational, societal, or interpersonal relationships that persist over time and are not quickly or easily resolved (Pearlin & Schooler, 1978). Examples relevant to the population of interest for this study would be acculturative stress and family conflicts. A third level of stress concerns everyday problems that come up, are resolved, and are soon replaced by others (DeLongis, Coyne, Dakof, Folkman, & Lazarus, 1982; Lewinsohn & Amenson, 1978). It can be hypothesized that stress at any of these levels will increase the probability of substance use, although it is expected that enduring strains, due to their long-term nature, would be most likely to create risk for habitual substance use (Wills & Shiffman, 1985).

The relationship between stress and alcohol use is complicated. It depends on a variety of factors such as number and nature of stressors (e.g., Dawson, Grant, Ruan, 2005), demographic factors such as gender and poverty status (e.g., Bray, Faibank, & Marsden, 1999; Dawson et al., 2005; Frone, Cooper, & Russell, 1994; Skaff, Finney, & Moos, 1999), and problematic vs. non-problematic drinking (e.g., Cole, Tucker, Griedman, 1990; King, Bernardy, & Hauner, 2003; Moos, Fenn, Billings, Moos, 1989). For instance, individuals with problematic alcohol use seem to experience more life stressors, relative to those without problematic alcohol use. Moos and colleagues (1989) examined the impact of life stressors and resources on alcohol use and related problems among individuals who currently received treatment for AUDs, and adults with no AUDs. Those with AUDs experienced more negative life events and physical health, home/neighborhood, financial-related, and spousal-related stressors, and fewer financial and friend-related resources than did adults with no AUDs. A potential limitation of this line of research is that it is unclear whether these life stressors were precursors of drinking or consequences of alcohol use.

Veenstra and colleagues (2006) conducted an extensive literature review and concluded that the nature of the stressful life event seems to have a substantial impact on the relationship. In reviewing 16 studies published between 1990 and 2005, four cross-sectional studies found evidence to support the notion that exposure to life-events is related to higher alcohol use (Cole et al., 1990; Cooper et al., 1992; Frone et al., 1994). Three other studies, however, did not find such association (Welte & Mirand, 1995; Droomers, Schrijvers, & Stronks, 1999; Graham & Schmidt, 1999). In the five remaining cross-sectional studies, the association between specific life-events and alcohol use was more complicated (Krause, 1991; Jennison, 1992; Welte, 1998; José, van Oers, van de Mheen, Garretsen, & Mackenbach, 2000; Dawson et al., 2005). Specifically, being a victim of crime was linked to greater alcohol consumption (Dawson et al., 2005; Jennison, 1992; José et al., 2000; Krause, 1991; Welte, 1998), while divorce and financial problems were related to both higher and lower alcohol use (Dawson et al., 2005; Jennison, 1992; José et al., 2000; Krause, 1991; Welte, 1998). Life-events related to health were associated with lower alcohol use (Krause, 1991). Additionally, results in the four longitudinal studies indicated that following health-related life-events and financial problems, individuals decreased alcohol use (Brennan et al., 1999; Glass, Prigerson, Kasl, & Mendes, 1995; Perreira & Sloan, 2001; Romelsjo¨, Lazarus, Kaplan, & Cohen, 1991). Life-events related to spouses, friends and relatives, and retiring led to increases in alcohol consumption (Brennan et al., 1999; Glass et al., 1995; Perreira & Sloan, 2001; Romelsjo¨ et al., 1991).

In the above review, Dawson and colleagues' study had the largest sample size. In a representative sample of 26,946 adults 18 years of age and over in the community, Dawson and colleagues (2005) examined the relationship between stress and alcohol consumption (i.e. average quantity/day, overall frequency of drinking, frequency of heavy and moderate drinking,

typical and peak quantity) and over a one-year interval. Associations between the type of stressors and most drinking measures were modified by gender. Men also evidenced a stronger relationship between alcohol use and exposure to any legal and job-related stress: Men drank more frequently and consumed more alcohol per occasion when facing legal stress. A similar effect for gender was also found in prior research, indicating stress has a stronger impact on men's alcohol use in comparison to women (Bray et al., 1999; Frone et al., 1994; Skaff et al., 1999). With regard to financial stress, there was an interaction between poverty status and type of stress. For poor individuals, health-related stress reduced the number of moderate drinking days by 28%. Having an income below the poverty level also enhanced the effects of job-related stress: Job-related stress increased drinking frequency and quantity of consumption among poor drinkers. Additionally, results indicated a positive association between number of stressors and all measures of heavy drinking, particularly frequency of heavy drinking (i.e. 5+ drinks for men; 4+ drinks for women). Frequency of heavy drinking increased by 24% with each additional stressor reported by men and by 13% with each additional stressor reported by women. Associations between the number of stressors and most drinking measures were stronger among men, relative to women. This is consistent with findings in José and colleagues' study (2000). Thus, we conclude that number of stressful life events is positively associated with alcohol use.

4.1.2. Stressful Life Events and Alcohol Use in the Asian Population

Only one study of the relationship between Asian-specific stressful live events and alcohol use was identified in a PsychInfo literature search. Unger and colleagues (2001) examined this association among 205 seventh-grade adolescents in Wuhan, China. The most frequently reported stressful life events were bad grades and punishment at school. The events reported as most severe were disruptions in family life, such as death, divorce, or disability of

parents. For boys, negative school-related events positively predicted alcohol use. This relation was mediated by depressive symptoms. For girls, positive family-related events as well as both positive and negative peer-related events predicted higher alcohol use. Unger and colleagues (2001) concluded that school-related stressors may lead to substance use and mental health problems among Chinese adolescents. They pointed out that this is not surprising given that Chinese adolescents spend a large proportion of their time attending school and experience intense pressure to compete with their peers at an earlier age. This is different from most adolescents' education experience in the U.S. Overall, these results highlight potential cultural difference in the nature of stress experienced.

4.2.1. Negative Affect (Depression and Anxiety) and Alcohol use in the General Population

In a comprehensive review, Baker and colleagues (2004) identified negative affect as the primary motive for drug use. This model proposed that problematic substance use is motivated by positive and negative affective regulation such that substances provide negative reinforcement when they alleviate negative affective states (Khantzian, 1974; Tennen, Affleck, Armeli, & Carney, 2000). Indeed, the positive relationship between depression and alcohol use has long been established (Aneshensel & Huba, 1983; Berger & Adesso, 1991; Birnbaum, Taylor, & Parker, 1983; Haack, Harford, & Parker, 1988; Hartka et al., 1991; Parker et al., 1987; Wilsnack et al., 1984). In a meta-analysis examining eight community-based longitudinal studies, Harkta and colleagues (1991) found that for both males and females, alcohol consumption prospectively predicts depression; this prediction is stronger for females than males. For males, earlier depression has no significant impact on later drinking. For females, strong positive relationships are found between depression and later consumption. Accounting for time interval (ranged from 2 to 10 years) between measurements, depression only predicts alcohol consumption over longer

intervals and consumption only predicts depression over shorter intervals for females. Similarly, alcohol consumption predicted later depression level among the males over shorter time intervals.

With regard to anxiety-related symptoms, a recent study utilizing Ecological Momentary Assessment offered support for Baker and colleagues' model (Swendsen et al., 2000). Prospective evidence was found indicating that nervous mood states lead to increases in later alcohol consumption. Among a number of positive and negative emotions, nervousness was the only negative mood state associated with increased alcohol consumption later in the course of the day. Cross-sectional analyses indicated alcohol intake is linked with a lower level of nervousness than is usually experienced by the participant. Moreover, these mood changes were associated with several individual difference factors: family history of alcoholism, problem drinking patterns, or trait anxiety and depression. Additionally, men were more likely than women to consume alcohol after experiencing an increase in nervousness as well as being more likely to report that they could have "really used a drink" if they had previously been nervous. This association was not associated with the clinical factors mentioned above.

4.2.2. Negative Affect and Alcohol use in the Asian population

We are aware that only one study examined the relationship between negative affect and alcohol use (Yee & Nguyen, 1987). Correlated analyses indicated that higher propensity to use alcohol for coping purpose was positively associated with worries and concerns about living in the U.S., troubles (e.g., feeling angry, sexual problems, physical problems), and level of depression. While these findings are useful and the sample size is quite large, this study carries two limitations: 1) alcohol consumption and its association between variables were not assessed; 2) the psychometric properties of "troubles" were not reported and the scale was unpublished.

Future research should address these concerns by directly assessing alcohol, related problems, and their associations with negative affect and using published, validated measures to assess negative affect.

4.3.0. Stressful Life Events and Negative Affect

Empirical literature has demonstrated a consistent relationship between stressful life events and subsequent onset of Major Depression (Bebbington et al., 1984; Brown & Harris, 1978; Costello, 1982; Paykel, 1978; Surtees et al., 1986). One study demonstrated that this relationship is perhaps causal (Kendler, Karkowski, & Prescott, 1999). Depression and the occurrence of 15 classes of stressful life events were assessed over a 1-year period among a sample of female twins obtained from a population-based registry. Stressful life events were individually rated on contextual threat and dependence (i.e. the degree to which the stressful life event could have resulted from the participant's behavior). Results indicated that stressful life events have a substantial causal relationship with the onset of episodes of major depression. However, about one-third of the association between stressful life events and onsets of depression is not causal, given that individuals predisposed to major depression select themselves into high-risk environments. Similarly, research has also found that the occurrence of stressful life events is significantly associated with subsequent anxiety disorders (Barrett, 1979; Faravelli & Pallanti, 1989; Finlay-Jones & Brown, 1981). Taken together, we conclude that stressful life event is positively associated with depression and anxiety.

4.4.1. Alcohol Use Coping Motives, Alcohol Use, and Related Problems in the General Population

Drinking motives have been a popular construct in the substance use literature in the past few decades (e.g., Beckwith, 1987; Cahalan, Cisin, & Crossley, 1969; Conner, O'Farrell, Cutter,

& Thompson, 1987; Mulford & Miller, 1960; Newcomb, Chou, Bentler, & Huba, 1988). Cooper and colleagues (1992) suggested,

"People differ widely in their reasons for drinking…These differences are important because different drinking motives have been shown to predict distinct patterns of alcohol consumption and alcohol-related problems…Problems associated with the use of alcohol to cope cannot be accounted for solely by the amount of alcohol consumed because such problems appear to stem also from the particular motivations underlying alcohol use (p. 123)."

In an effort to assess different types of drinking motives, Cooper and colleagues (1992) developed a three-factor scale (i.e. social, enhancement, and coping) among 1,933 adults, randomly stratified from a longitudinal study conducted in Erie County, New York. Coping motives for alcohol use are defined as "drinking to cope with negative emotions or feelings of personal deficiency (Cooper et al., 1992)." Cooper and colleagues found coping motives had a positive relation with frequency of alcohol consumption and frequency of drinking to intoxication, while they were not significantly associated with quantity of consumption. Coping motives were the strongest predictors linked to symptoms of abusive drinking, such as social and occupational dysfunction and tolerance and withdrawal symptoms after controlling for typical alcohol consumption. Coping motives were also significantly associated with drinking alone and drinking with a partner, although drinking alone had a stronger relation. Subsequent studies have replicated these findings (Abbey et al., 1993; Grunberg, Moore, Anderson-Connolly, & Greenberg, 1999; Martin, Blum, & Roman, 1992). For instance, coping motives for drinking have been consistently implicated as a predictor for drinking alone, heavy drinking, and alcohol related problems in community adults and employed men (Abbey et al., 1993; Grunberg et al., 1999).

Three additional studies further solidified the role of alcohol use coping motives in the drinking literature. In a predictive model using cross-sectional data, Cooper and colleagues (1988) examined the relationship between coping motives, general coping skills, and alcohol expectancies (e.g., beliefs that alcohol will reduce tension and facilitate social expressiveness) among a sample of 119 adults with AUDs and 948 adults without AUDs in the community. This is the same source of data used in Cooper and colleagues' study (1992) mentioned above. Drinking to cope was the most powerful explanatory variable in the model, contributing to alcohol abuse or dependence. Cooper and colleagues (1988) concluded that independent of level of alcohol consumption, individuals who drink to cope are more likely to experience problems indicative of abuse syndromes. Those who rely on alcohol to cope with negative emotion may become more psychologically dependent on alcohol. Increased psychological dependence, in turn, may promote continued alcohol consumption in spite of experiencing negative consequences. In another sample of community adults (N = 777), Carpenter and Hasin (1999) examined models of AUD development and found that the use of alcohol to cope with negative affect operated as a risk factor for developing an alcohol use disorder.

4.4.2. Alcohol Use Coping Motives, Alcohol Use, and Related Problems in the Asian Population

We are aware that only two studies have demonstrated the association between alcohol use coping motives, alcohol use, and related problems. In a study examining the motivation for drinking among a sample of youth from low socioeconomic background, relative to Caucasian, Black, and Hispanic youth (Morgan, Wingard, & Felice, 1984), Southeast Asian youth (N = 69) who had recently immigrated to the U.S. were more likely to drink because their friends drink or because they want to "forget their past experience." Since length of residency in the U.S. among these youth was not reported, it is somewhat difficult to know what "past experience" these

youth were referring to. Based on literature regarding Southeast Asian mental health, it is likely that they may have been referring to trauma related to war, refugee experiences and/or resettlement circumstances (Amodeo, Robb, Peou, & Tran, 1997; D'Avanzo, 1997). In another study comprised of 790 Indochinese refugees, Yee and Thu (1987) found that 45% "had trouble drinking alcohol or smoking tobacco" sometimes and 7.9% reported trouble with these issues all the time. With regard to coping motives, approximately 40.4% reported sometimes using alcohol to "diminish or handle their problems", and close to 6% reported using alcohol a lot for such coping purpose. As stated earlier, one limitation in this study is that the psychometric properties of "troubles" were not reported and this scale was unpublished.

4.5.0. Negative Affect and Coping Motives

Holanhan and colleagues (2001) examined the ability of baseline drinking to cope to predict drinking behavior across an ensuing 10-year period among 421 adults. Drinking-to-cope was measured by one item in a scale assessing overall coping strategies. Findings suggest that drinking to cope at baseline positively predicted alcohol consumption and drinking problems at all four observations: baseline, 1-, 4-, and 10-year follow-ups. Changes in drinking-to-cope were positively associated with changes in both alcohol consumption and drinking problems over the interval. For individuals who had a stronger tendency to drink to cope at baseline, they exhibited a stronger relation between both anxiety and depressive symptoms and drinking outcomes. These findings demonstrate the powerful role of alcohol-related coping motives in predicting drinking behavior and alcohol use and abuse over time. Thus, we conclude that negative affect is positively associated with individuals' motivation to use alcohol for coping purpose.

4.6.0. Overall Model

While a number of studies have examined Will and Shiffman's stress and coping model of substance use, Peirce and colleague's study (1994) made a significant contribution by evaluating how a particularly type of stress (i.e. financial strains) affects alcohol consumption. Specifically, Peirce and colleagues utilized the affect regulation theory (Cappell & Greeley, 1987), which assumes that individuals consume alcohol in order to relieve negative emotions. Among 1,424 randomly sampled adults in the community, Peirce and colleagues (1994) found that depression mediated the relationship between financial strain and drinking to cope, and drinking to cope mediated the relationship between depression and alcohol use and related problems. Additionally, this study was the first to examine the generalizability of the stress and coping model with respect to race (Black vs. non-Black). In terms of race, there was a significant difference between the models for Blacks vs. non-Blacks. Race moderated the associations between: 1) depression and drinking to cope, 2) perceived social support and drinking to cope, 3) drinking to cope and alcohol consumption, 4) depression and alcohol problems, 5) drinking to cope and alcohol problems, and 6) alcohol consumption and alcohol problems. These differences indicated relationships that were stronger among Blacks than among non-Blacks. Peirce and colleagues (1994) argued that while differences were found, they appeared to be small and thus this model does generalizes across Blacks and non-Blacks. Nevertheless, it is recommended that future research should attempt to replicate these racial differences in order to gain theoretical understanding of how race may influence stress processes.

Overall, based on studies testing Wills and Shiffman's theoretical model and findings in Peirce and colleagues' study, the following stress and coping pathways have received empirical support: 1) Number of stressful life events is positively associated with negative affect, which in turn is positively related to alcohol use coping motives. Negative affect thus mediates the

relationship between stressful life events and coping motives; 2) Negative affect is positively related to alcohol use coping motives, which in turn are positively related to alcohol use and related problems. Alcohol use coping motives thus mediate the relationship between negative affect, and alcohol use and related problems. Measures of negative affect are correlated. See Figure 2 for detail.

5.0.0. Rationale for Developing a Culturally Relevant Model for the Asian American population

Wills and Shiffman's model is a promising approach that can be used to examine etiologies and outcomes of alcohol use among treatment-seeking Asian Americans. Research has suggested that Asian American adults use alcohol and drugs for the purpose of coping with stress (Amodeo et al., 1997; Caetano et al., 1998; D'Avanzo, 1997; D'Avanzo, Frey, & Froman, 1994; Johnson, 1996; Morgan et al., 1984; O'Hare & Tran, 1998; Makimoto, 1998; Yee & Nguyen, 1987). Specifically, using alcohol for the purpose of coping has received some support based on research conducted in Southeast Asian adults (D'Avanzo et al., 1994; Morgan et al., 1984; Yee & Nguyen, 1981). In a review of prior research, O'Hare and Tran (1998) pointed out that, "Although no well-controlled longitudinal data are currently available, preliminary evidence suggests that pockets of trouble (with alcohol and drug abuse) are beginning to emerge in Southeast Asian communities, and they appear to be directly related to a host of psychosocial stressors (p.72)." While some of these studies have examined a variety of stressors and their impact on alcohol use and negative affect, it is important to note that five out of nine studies were based on original data, and the rest were literature review studies. Studies based on original data had a few weaknesses: 1) Some studies did not utilize validated measures to assess key constructs; and 2) Studies were only descriptive in nature and therefore did not examine mediating variables between stressors and alcohol use and related problems. These mechanisms

are important since they shed light on how stressors affect alcohol use and related problems (e.g., through negative affect and alcohol use coping motivation. Taken together, this trend indicates that research in this area is scarce and more investigation is needed to understand the phenomenon of stress, coping, and alcohol use among Asian Americans.

While Wills and Shiffman's (1985) conceptual model has demonstrated great utility in the general population, its applicability for the Asian American population may be compromised because: 1) Previous studies utilizing this model are based on samples that do not include an adequate number of Asian Americans (Frone & Windle, 1997; Holahan, Moos, Holahan, Cronkite, & Randall, 2001; Lamon, & Alonzo, 1997; McCreary & Sadava, 2000; Pierce et al., 1994; Welte & Mirand, 1995). Therefore, findings from the literature may not apply to the Asian American population where patterning of alcohol problems differs from the population at large (DHHS, 2001); 2) Key variables in the model such as stress, expression of negative affect, and coping behavior may be shaped by culture. These changes may therefore affect the applicability of the model.

In the present paper, we extend what is known in Wills and Shiffman's model (1985) by examining stress and coping behaviors unique to Asian Americans. We predict that Asian-specific factors may improve prediction of the original stress and coping model for treatment-seeking Asian American population. We select the variables either have been shown to be directly related to alcohol use, or have direction theoretical relation to crucial Asian American mental health variables, that could predict alcohol use and alcohol-related problems. A heuristic model representing stress and coping factors hypothesized to be associated with alcohol use and alcohol-related problems in this population is displayed in Figure 3. Direct relations between predictors and alcohol use and alcohol-related problems are not highlighted in this figure due to

space limit. Variables with asterisks are Asian-specific stress and coping factors. Solid lines are pathways in the original model. Dotted lines are Asian-specific stress and coping pathways. In the following section, we will discuss key variables that can be added to the original stress and coping model. See Figure 3 for the heuristic model. We hypothesize that: 1) Stress (i.e. number of stressful life events, acculturative stress, and family conflicts) would be positively associated with negative affect and somatic symptoms, which in turn would be positively related to alcohol use coping motives. Hence, negative affect and somatic symptoms would be explored as mediators of the relationship between stress and alcohol use coping motives; 2) Negative affect and somatic symptoms would be positively associated with alcohol use coping motives and the specific Collectivist Coping Style (i.e. high avoidance and detachment), which in turn would be positively related to alcohol use and related problems. Hence, alcohol use coping motives and the specific Collectivist Coping Style would be explored as mediators of the relationship between negative affect/somatic symptoms and alcohol use and related problems. Measures of negative affect and somatic symptoms would be correlated. Furthermore, we hypothesized that the culturally-relevant model would produce significantly better model-data fit, relative to the classic stress and coping model.

5.1.1. Acculturative Stress

Acculturation has been defined as the "…phenomenon which results when groups of individuals having different cultures comes into continuous first-hand contact with subsequent changes in the original culture patterns of either or both groups (Redfield, Linton, Herskovits, 1936)." Particularly, acculturation may involve the acquisition of the dominant group's cultural beliefs, behavior and values and the relinquishment and retention of one's culture of origin (Hwang & Wood, 2009). While many advances have been made in measuring acculturation, this

line of research has yet to resolve problems in conceptualization and methodology (DHHS, 2001).

A related concept to acculturation is acculturative stress. There are two theoretical conceptualizations of acculturative stress (Gil, Vega, & Dimas, 1994). First, acculturative stress may occur as an outcome of the acculturative process, and includes issues such as language problems, perceived discrimination, perceived cultural incompatibilities, commitment or lack of commitment to culturally prescribed protective values/behaviors (e.g., familialism and cultural pride) (Vega, Zimmerman, Gil, Warheit, & Apospori, 1993). Second, social-stress models of acculturative stress include mediating factors that may affect an individuals' ability to adapt successfully to their environment (Cervantes & Castro, 1985; Dyal & Dyal, 1981; Miranda & Castro, 1985; Vega, Hough, & Miranda, 1985; Vega, Warheit, & Meinhardt, 1985; Wiliams & Berry, 1991). The principle of these theories is that negative outcomes occur when stressors exceed the individual's coping resources (Gil et al., 1994).

Acculturative stress has been indicated as a more proximal risk factor and increases risk of mental health problems above and beyond global perceptions of stress (Hwang & Ting, 2008). A recent study based on 2095 participants in the NLAAS survey indicates that acculturative stress is strongly predicted by English language proficiency, native language proficiency, discrimination, family cohesion and the context of migration exit (Lueck & Wilson, 2010). Individuals with lower English language proficiency, lower native language proficiency, and experienced higher level of ethnic discrimination exhibited higher acculturative stress. Additionally, holding conflicting values and beliefs as a family, lack of mutual trust and respect, lack of sense of closeness, and high family dispute levels significantly contributed to higher acculturative stress. Acculturative stress was lowest among individuals: 1) who were born in a

developed country; or 2) whose parents were born in the US and who received most of their primary and secondary education in the US. Acculturative stress was also significantly lower among those who were highly satisfied with their economic opportunities in the US and also among immigrants who would still move to the US, if a choice needs to be made again.

5.1.2. Acculturative Stress and Alcohol Use

In a review of factors influencing substance use among immigrants and other displaced populations, Johnson (1996) suggested that there are two major theoretical approaches explaining how acculturative stress influences substance use,

"The acculturative stress model suggests that cultural conflict at point of destination and lack of social and economic resources for coping may result in migrant substance use as a maladaptive coping mechanism (Berry et al., 1987; Cheung, 1990-91; Mirdal, 1984). As such, this model makes the assumption that the process of adjusting to a new environment is perceived as stressful by the immigrant, who may resort to substance use to alleviate the tensions and/or negative mood states generated by this stress. A related model borrowed from the mental health literature, where it is referred to as the "goal-striving stress model," suggests that increased substance use among immigrants may be a consequence of frustrated aspirations in the host society (Kuo, 1976; Vega et al., 1987). Stress produced by unfulfilled expectations, of course, may be a consequence of personal inability to adjust to a new environment, or external factors such as discrimination or existing economic conditions in the host society, or both (p.1856-1857)." It is important to note that these theoretical approaches have not been directly tested in the empirical literature (i.e. the relationship between acculturative stress, tendency to use alcohol for coping purpose, and alcohol use), while stress related to acculturation has long been hypothesized to be associated with alcohol use and other drug use among Asian Americans (Amodeo et al., 1997; Caetano et

al., 1998; D'Avanzo, 1997; D'Avanzo et al., 1994; Johnson, 1996; Makimoto, 1998; O'Hare & Tran, 1998; Yee & Nguyen, 1987). For instance, as mentioned earlier, numerous stressors have been found to influence Cambodian women during the pressures of acculturation to the U.S. lifestyle. To cope with these stressors, some may use alcohol and other drugs (D'Avanzo et al., 1994). In a review study, O'Hare and Tran (1991) suggested that Southeast Asians' immigration and refugee experience, mental health disorders (which often co-occur with substance abuse), and acculturative stress may contribute to an increase in substance abuse problems.

Based on data collected for the National Latino and Asian American Study (NLAAS), two studies found associations between two domains of acculturative stress, racial discrimination and unfair treatment, and alcohol use disorders. Asian Americans in the study included Chinese, Filipino, Vietnamese, other Asian ethnicity alone, and Biracial/mixed racial individuals. In one study, Chae and colleagues (2009) found that routine experience of unfair treatment in one's daily life (e.g., treatment with less respect or insult) was a risk factor, as it was associated with increased likelihood of history of alcohol use disorders. Ethnic/racial identification (i.e. how closely the participant can identify to others of the same racial/ethnic background) was a protective factor, as it was associated with odds of history of alcohol use disorders. Ethnic identification served as a buffer for racial/ethnic discrimination on alcohol use disorders: racial/ethnic discrimination was only related to higher odds of history of alcohol disorder among those with low levels of ethnic identification. However, ethnic identification did not buffer everyday unfair treatment. In the other study, Gee and colleagues (2006) found that routine experience of unfair treatment in one's daily life is significantly associated with current alcohol dependence among 20 Filipino American adults. Specially, a one-unit increase in reports of everyday unfair treatment was related to 2-fold greater odds of being diagnosed with alcohol

dependence. Gee and colleagues (2006) suggested that this result must be interpreted with caution due to the small number of individuals who met the diagnostic criteria. Overall, evidence suggests that there is a positive relationship between acculturative stress and alcohol use disorders. This further highlights the need to understand how (e.g., through negative affect and alcohol use coping motives) acculturative stress is related to alcohol use and related problems in the Asian American population.

5.1.3. Acculturative Stress and Negative Affect

A number of studies have indicated that acculturative stress has a negative impact on life satisfaction and is associated with higher levels of depression (Constantine, Okazaki, & Utsey, 2004; Han, Kim, Lee, Pistulka, & Kim, 2007; Hwang & Ting, 2008; Oh, Koeske, & Sales, 2002; Pan, Wong, Joubert, Chan, 2008; Shin, 1994; Shin, Han, Kim, 2007). Shin's research (1994) was one of the first studies examining the impact of acculturative stress on mental health in Asian Americans. Among 262 Korean-American immigrant women between the ages of 35 and 55, depressive symptoms were positively correlated with acculturative stress and negatively correlated with self-esteem and socioeconimic status. In another sample of Korean immigrants (N = 157) in the community, Oh and colleagues (2002) found that lower acculturation in the domains of English language use and social interaction with Americans, was related to higher acculturative stress, which in turn was associated with higher depression. Lower acculturation, in the domain of abandoning Korean identity and traditions, and adaptation of a U.S. identity, was significantly related to depression. However, this relation was not mediated by acculturative stress. Hwang and Ting (2009) investigated whether acculturative family distancing (AFD), a dimension of acculturative stress, predicts the mental health status of Asian American (N = 107) and Latino (N = 79) college students. AFD has two domains: communication difficulties and

cultural value incongruence due to acculturation gap between students and their parents. Results indicated that AFD was positively associated with psychological distress and greater risk for clinical depression, with family conflict meditating this relation. Taken together, acculturative stress may have adequate utility in predicting health risk behaviors. One interesting trend in the literature is that most research to date is based on Korean Americans. Given that acculturation experiences and processes may be heterogeneous among Asian immigrants, we should not automatically assume that acculturative stress would exert the same effect on other Asian immigrants, as it does on Korean Americans.

Taken together, we suggest that the tendency to use drinking as a way to cope with acculturative stress is mostly likely based on the mechanisms proposed in Wills and Shiffman's model (1985). Thus, we hypothesize that individuals consume alcohol to reduce the negative emotions arising from experiencing acculturative stress. Among treatment-seeking Asian American adults, acculturative stress would be positively associated with negative affect, which in turn would be positively associated with alcohol use coping motives, predicting alcohol use and related problems.

5.2.1. Family Conflict

It has been suggested that Asian Americans tend to endorse a collectivist orientation, which emphasizes maintaining harmonious familial and social relationships. This orientation stems from the ways in which "self" is conceptualized in Asian culture (Markus & Kitayama, 1991). Markus and Kitayama, pioneer scholars in the field of cultural psychology, suggested that an interdependent self (more prominent in Asian cultures) sees oneself as part of an encompassing social relationship. Thus, one's behavior is determined largely on his/her perceptions of thoughts, feelings, and actions of others in the relationship. The person is not

viewed as separate from the social context but as more connected and less differentiated from others. Individuals are motivated to find ways to fit in with relevant others, to fulfill and create obligation, to engaged in appropriate actions, to promote others' goals, and in general to become part of various interpersonal relationships. The communication style tends to be "indirect" (e.g., "reading others' mind") in order to promote interpersonal harmony. Individuals are encouraged to adjust and restrain self in order to maintain harmony with the social context. On the other hand, the independent self (more prominent in Western cultures) tends to see oneself as separate from social relationship. Thus, one's behavior is largely determined on one's own thoughts, feelings, and actions. Individuals are motivated to find ways to be unique, to express oneself, to be aware of one's internal attributes, and to promote one's own goals. The communication style tends to be direct, which focuses on "saying what is on one's mind." Individuals are encouraged to express self and seek validation for their internal attributes. Markus and Kitayama's work has since received strong support from the cultural psychology literature. This notion has also received support in the practice of counseling and clinical psychology (Sue & Sue, 2008). Rather than promoting individual needs and personal identity, Asian families tend to have a family and group orientation. For instance, children are expected to strive for family goals and to not engage in behaviors that would bring dishonor to the family…the emphasis is on family harmony, adaptation to the needs of others, and adherence to "correct" values (p. 362)."

5.2.2. Family Conflict and Alcohol Use

Family conflict or discord is predictive of substance use among Asian American adolescents (Harachi, Catalano, Kim & Choi, 2001). Family discord was positively associated with alcohol and cigarette use among a sample of Chinese and Filipino youth between of the age of 12 and 18 (Zane et al., 1999). In another study based on New York Health data (1991), family

conflict was positively associated with drug use among Asian American adolescents. It is important to note that mediating factors for this relation have not been examined.

5.2.3. Family Conflict, Negative Affect, and Somatic Symptoms

Given the strong endorsement in collectivist practice, it is not surprising to find that family conflict plays a major role in predicting psychological well-being among Asian Americans (Aldwin & Greenburger, 1997; Constantine, Chen, & Ceesay, 1997; Fraser & Pecora, 1985; Greenburger & Chen, 1996; Hwang & Wood, 2009; Karasz, 2005; Lee, Choe, Kim, & Ngo, 2000; Lee & Liu, 2001). In the college population, research has indicated that parent-child conflict is one of the most common presenting problems for Asian American students seeking counseling services (Constantine et al., 1997), and such conflict increases vulnerability to depression (Aldwin & Greenburger, 1987; Greenburger & Chen, 1996) and psychological distress (Lee & Liu, 2001). Among 173 early adolescents and 297 college students, Greenberger and Chen (1996) examined perceived parent-adolescent relationships and depressed mood. There was a significant ethnic difference in depressed mood among the college sample- Asian Americans reporting more symptoms than Caucasians. Ethnic differences in depressed mood emerged as non-significant when quality of parent-adolescent relationships was accounted for. Relative to Caucasian college students, Asian Americans college students reported a less cohesive and more conflicted family environment, more conflict between themselves and their parents, and less parental warmth and acceptance. Asian American students' experience may be attributed to Acculturative Family Distancing (AFD), which consisted of experiencing communication difficulty and cultural value incongruence in their interaction with parents. Hwang and Wood's (2009) work showed that AFD does indeed positively predict psychological distress and risk for clinical depression, and the relationship between AFD and clinical

depression was mediated by family conflict. Lee and Liu (2001) examined coping strategies as potential mediators in the relationship between intergenerational family conflict and psychological distress among Asian American, Hispanic, and European American college students (N = 406). Asian American college students reported the highest likelihood of family conflict. Indirect coping, a host of strategies similar to avoidant, emotion focused coping (i.e. coping strategies aim at ameliorating the negative emotions associated with the problem), mediated the effect of family conflict on distress for Asian Americans, such that higher family conflict leads to higher indirect coping, which in turn contributed to greater psychological distress. Examples of indirect coping includes "I use alcohol or other drugs to help me get through it" and "I refuse to believe that it has happened." This is consistent with findings in the substance use literature, such that avoidant, emotion-focused coping is associated with problematic alcohol use in the face of life stressors (Cooper et al., 1992; Koopman, Wanat, Whitsell, Westrup, & Matano, 2003; Moos, Finney, & Chan, 1981; Moos, Finney, & Gamble, 1982; Veenstra et al., 2007; Windle & Windle, 1996).

With regard to community samples, family conflict exhibited a similar impact on mental health. Using qualitative methods, problems associated with marriage roles, including marital and affinal family conflict, domestic overwork, and isolation, were viewed as extremely serious and were considered to be associated with psychological and somatic symptoms among 35 traditional South Asian immigrant women (Karasz, 2005). The most common health issues mentioned by women included feeling like they were "going crazy" (26%), heart problem (14%), and fever (14%). Fraser and Pecora (1985) examined the psychological well-being among Indochinese refugees. Through interviewing 68 refugee caseworkers and 51 refugee sponsors,

results indicate that social problem (i.e. social isolation and family conflict) is a major stressor for refugees.

Despite evidence supporting a link between family conflict and Asian American mental health and substance use, its relationship with alcohol use and related problems has not been examined in an adult sample. Given the collectivist nature of the Asian population, it is likely that family conflict would have a negative impact on mental health, and some individuals may elect substance use as a coping strategy in minimizing the negative emotions arising from family conflict. Thus, we hypothesize that among treatment-seeking Asian American adults, family conflict would be positive associated with negative affect and somatic symptoms, which in turn would be positively associated with alcohol use coping motives, predicting alcohol use and related problems.

5.3.1. Somatic Symptoms

Culture shapes the manifestation and recognition of psychological problems (DHHS, 2001). This assertion was first proposed by Kleinman (1977; 1980). Kleinman suggested that culture shapes an illness episode, determining its syndrome, prognosis, course, and treatment. This potential cultural difference in symptom manifestation was first pointed out in Kleinman's (1977) research. In a sample of 25 patients recruited from a psychiatric clinic in Taiwan, 88% of the patients initially indicated somatic complaints without affective complaints. In contrast, in a parallel sample recruited from a U.S. hospital, 4% reported somatic symptoms without affective complaints and 16% reported somatic complaints with affective symptoms. Kleinman provided a helpful description:

"In Mandarin, a common word for depression is "悶"…Most Chinese somatizers whom I have studied point to their chest when they use this term. They report a physical sensation of pressure

on the chest or heart. But when they describe it using "悶" they mean both the physical and sensation of something "pressing on" or "depressing into" their chest as well as its psychological concomitants- e.g. sadness. But they focus on the former as the chief problem. They might also relate this term to family tensions or social stresses (p.)." Furthermore, Kleinman indicated that previous research conducted using Chinese Americans and Chinese patients in China and in Hong Kong (e.g., Kleinman, 1975; Tseng, 1975) have found the same phenomenology pattern amongst Chinese patients with depression. While Kleinman's study (1977), utilizing both anthropological and psychiatric approaches, had a relatively small sample size compared to that in the contemporary epidemiology studies, it paved the way for research in the next two decades in examining this important empirical question. Some subsequent research found support for Klieman's observation (Chang, 1985; Hong, Lee, & Lorenzo 1995; Parker, Gladstone, & Chee, 2001). Chinese Americans are more likely to exhibit somatic complaints of depression than are Whites or African Americans (Chang, 1985). Additional evidence suggests that Asians, in particular Chinese, are more likely to present their psychological problems as physical complaints (Hong et al., 1995). While these studies were able to support Klieman's observation, earlier research suffered from major methodology issues and inadequate sample size. For instance, Chang (1985) conducted three sets of factor analyses to compare patterns of depressive symptoms among Black (N = 26), White (N = 26) and Asian (N = 32) college students. Sample size in this study may be too small to achieve an unbiased result. Hong and colleagues' (1995) results were based on three case studies. Parker and colleagues (2001) reviewed research on neurasthenia, a psychiatric diagnosis that emphasizes somatic symptoms, and depression. They concluded that the Chinese tend to deny depression or express it somatically and neurasthenia is the most widely used diagnosis by psychiatrists in China (Parker et al., 2001).

A number of explanations have been offered to account for the phenomenon of somatization. First, the mind-body integration is prominent in Asian culture and medicine (Lin, 1996). For instance, in the Chinese culture, the word body and mind are commonly used together to suggest the connection between mental health and physical health. In seeking psychotherapy, Asian clients may therefore be more familiar with and feel more comfortable indicating somatic symptoms of distress (Hwang, 2006). Hwang (2006) pointed out that this does not mean Asians do not experience emotional and cognitive symptoms. Research evidence suggests even though Asian clients may be more likely to focus on physical complaints when they first enter treatment, they are fully aware of their of their emotions and capable of talking about their presenting problems for treatment (Cheung, 1995; Cheung & Lau, 1982). Second, mental illness is greatly stigmatized in many Asian cultures (e.g., DHHS, 2001). For example, the presence of mental illness in a Chinese family can lead to labeling the offspring unfit for marriage (Kleiman, 1977).

5.3.2. Somatic Symptoms and Alcohol Use

Only one study assessed the association between somatic symptoms and alcohol use among Asian Americans. Interviews with 120 Cambodian refugee women recruited through snowball sampling revealed that they tend to drink alone and use alcohol as a coping mechanism for emotional or physical pain (D'Avanzo et al., 1994). These women reported using alcohol for coping with psychological and physical symptoms: nervousness, stress, migraine headaches, insomnia, and for menstrual and other pain. With Vodka being the alcohol of choice, these women consumed one to eight ounces per occasion, up to four occasions per day. It is worthwhile to point out that these results were obtained using qualitative methods (i.e. open-ended questions), and estimates of the effect of coping motives on alcohol use was not assessed. However, given that somatic symptoms are closely associated with negative affect and hold a

prominent role in Asian American mental health, we hypothesize that these symptoms would have a positive relationship with alcohol use and related problems.

5.3.3. Somatic Symptoms, Negative Affect, and Alcohol use Coping Motives

While these explanations are based on holistic cultural and historical accounts of Asian Americans and thus seem logical, recent research has exhibited counter evidence for this claim (Yen, Robins, & Lin, 2000). Recent research suggest that Western and Asian differences in somatization and affective symptoms reflect differences in help-seeking behavior (Weiss, Tram, Weisz, Rescorla, & Achenbach, 2009), symptom severity (Mak & Zane, 2004), or stress experience (Gureje, Simon, Ustsun, & Goldberg, 1997), rather than actual prevalence differences. For instance, Mak and Zane (2004) examined somatization and its relation to acculturation, stress, support, depression, and anxiety among a community sample of 1,747 Chinese American adults. Contrary to findings in previous research, Chinese Americans' level of somatic symptoms and percentage of meeting symptom criterion were similar to those found in other populations (Gureje et al., 1997). Being female and having less education were risk factors for somatization. Anxiety, depression, lifetime stressful events, and financial strain were positively associated with somatization among immigrant Chinese Americans. Additionally, individuals with depressive or anxiety diagnoses were more likely to meet the somatization cut-off (4.05 and 2.20 times, respectively) relative to those without these diagnoses. Mak and Zane (2004) concluded that somatization might be a stress response to an increased level of anxiety and depression and psychosocial stressors rather than expressing psychological problems in somatic terms. In another study, Weiss and colleagues (2010) compared somatic versus affective symptoms in U.S. (N = 3,668) and Thai children (N = 2,695) from community and mental health clinic. Within the clinic-referred population, Thai children reported a higher level of somatic

versus depressive symptoms relative to U.S. children. In the community sample, this difference was not exhibited- both groups reported slightly higher levels of depressive than somatic symptoms. These results suggest that differences in somatic versus depressive symptom may be associated with help-seeking behavior. One potential explanation is that Thai parents may be more concerned about somatic symptoms relative to depressive symptoms and thus are more inclined to help their children seek mental health treatment.

It is important to note that most research conducted in this area is based on Chinese Americans, with the exception of one study, which was based on Thai children (Weiss et al., 2009). This may or may not limit the generalizability of such assumption to other Asians (e.g., Vietnamese). The phenomenon of somatization may need to be examined among different Asian ethnic groups for the claim to be supported and substantiated (Weiss et al., 2009). Take together, given that somatic symptoms are closely associated with negative affect and hold a prominent role in Asian American mental health, we hypothesize that somatic symptoms would exhibit identical relations with hypothesized variables among treatment-seeking Asian Americans, as negative affect. First, somatic symptoms would meditate the relationship betweens stress and alcohol use coping motives, such that acculturative stress and family conflict would be positively associated with somatic symptoms, which in turn would be positively associated with alcohol use coping motives. Second, somatic symptoms would have a positive relationship with alcohol use coping motives, which in turn would be positively associated with alcohol use and related problems.

5.4.1. Coping Behavior

Coping is defined as “the thoughts and behaviors used to manage the internal and external demands of situations that are appraised as stressful (Folkman & Moskowitz 2004).” In

a recent review of coping research in the past three decades, Folkman and Moskowitz (2004) posited the impact of coping in social science research, "…Coping is unlike these other concepts in that it lends itself to cognitive-behavioral intervention. As such, its allure is not only as an explanatory concept regarding variability in response to stress, but also as a portal for interventions." Folkman and Lazarus (1980) proposed two major styles of coping behavior: active, problem-focused coping and avoidant, emotion-focused coping (Folkman & Lazarus, 1980). Active, problem-focused coping is defined as "addressing the problem causing distress". Some examples are making a plan of action or concentrating on the next step. Avoidant, emotion-focused coping aims at ameliorating the negative emotions associated with the problem. Some examples are engaging in distracting activities, using alcohol or drugs, or seeking emotional support.

5.4.2. Coping Behavior, Negative Affect, and Alcohol Use

Empirical literature indicates that avoidant, emotion-focused coping is associated with problematic alcohol use in the face of stress or stressful life events (Cooper et al., 1992; Koopman et al., 2003; Moos et al., 1981; Moos et al., 1982; Veenstra et al., 2007; Windle & Windle, 1996). For instance, Veenstra and colleagues (2007) investigated whether coping style in dealing with negative life events (emotional, cognitive, and action) modifies the relationship between negative life events and alcohol use among a sample of 3,253 Dutch participants. An interaction effect was found between experiencing negative life events at baseline and emotion coping on alcohol use in the follow-up period, and this was true for both males and females. Among participants who tend to use more emotion-focused coping strategies, alcohol use was increased after experiencing a negative life event. Among those who tend to use fewer emotion coping strategies, alcohol use decreased following by experiencing a negative life event.

Additionally, having a more cognitive coping style or more social contacts was linked to lower alcohol consumption, whereas having an action coping style and receiving more social support was related to higher alcohol consumption. Veenstra and colleagues (2007) concluded that individuals who utilize more emotion coping increase their alcohol use after experiencing a negative life-event.

To examine the relationship between stress, coping behavior, and alcohol use in Asian Americans, we first have to address the issue that coping may be shaped by culture (Lazarus & Folkman, 1984; Marsella & Dash-Scheuer, 1988). Evidence has been shown in three domains of psychological research, including social psychology (e.g., Kim, Sherman, Taylor, 2008; Morling, Kitayama, & Miyamoto, 2003; Taylor, Welch, Kim, & Sherman, 2007), counseling psychology (e.g., Heppner et al., 2006), as well as clinical psychology (e.g., Bailey & Dua, 1999; Bjork, Cutherbertson, Thurman, Lee, 2001; Hsu, Chen, Wang, & Sun, 2008; Lam & Zane, 2004; McCarty et al., 1999; Tweed, White, & Lehman, 2004; Weisz, Rothbaum, Blackburn, 1984).

Variation in coping behavior may be attributed to cultural background and values (Lazarus & Folkman, 1984; Marsella & Dash-Scheuer, 1988) and the use of primary and secondary control (Weisz et al., 1984). With regard to cultural values, the work of Kim, Atkins, and Young (1999) identified a number of key Asian-specific values: avoidance of family shame, conformity to family norms and expectations, deference to authority figures, filial piety, importance of family, maintenance of interpersonal harmony, placing other's needs ahead of one's own, reciprocity, and respect for elders and ancestors. These values highlight the collectivistic nature of Asian culture (Markus & Kitayama, 1991). The concept of primary and secondary control was proposed by Weisz, Rothbaum, and Blackburn (1984). Primary control, more prominent in Western countries, refers to taking control through direct and active influence

on one's existing realities. Secondary control, more prominent in Eastern countries, refers to taking control by accommodating and reframing one's existing realities, leaving them essentially unchanged but exerting control over their personal psychological impact. The majority of Western research on control rests on the assumption that individuals exhibit primary control when they "shape existing physical, social or behavioral realities to fit their perceptions, goal or wishes" (p. 955) and those who do not exercise control are perceived as suffering from such problems as learned helplessness or deficits in self-efficacy (Weisz et al., 1984). Weisz and colleagues (1984), however, argued that control could also be pursued in another way, and hypothesized 4 types of secondary control: (a) predictive control, in which the individual "attempts to accurately predict events and conditions so as to control their impact on self"; (b) vicarious control, in which the individual "attempts to associate or closely align oneself with other individuals, groups or institutions so as to participate psychologically in the control they exert"; (c) illusory control, in which the individual "attempts to associate or get into synchrony with chance so as to enhance comfort with and acceptance of one's fate"; and (d) interpretive control, in which the individual "attempts to understand or construe existing realities so as to derive a sense of meaning or purpose from them and thereby enhance one's satisfaction with them" (p. 957). A number of studies have supported these hypotheses, particularly in the context of interpersonal conflicts (Flammer et al., 1995; Lam & Zane, 2004; McCarty et al., 1999; Oerter, Oerter, Agostiani, Kim, & Wibowo, 1996; Peng, 1995; Seginer, Trommsdorff, & Essau, 1993; Trommsdorff & Essau, 1998; Trommsdorff & Friedlmeier, 1993). For instance, one recent study tested whether there is an ethnic difference in how Asian American and Caucasians cope with 15 interpersonal stressors specific to college life, such as stressors with peers, parents, teachers, and authorities (Lam & Zane, 2004). Asian Americans (N = 79) were more oriented

toward secondary control and less oriented toward primary control than Caucasian peers (N = 79). Independent self-construal fully mediated the ethnic difference in primary control: Greater endorsement for an independent self-construal accounted for higher usage of primary control among Caucasian students, relative to Asian students. Interdependent self-construal partially mediated the ethnic difference in secondary control: Greater endorsement toward an interdependent self-construal accounted for the greater usage of secondary control among Asian students, in comparison to Caucasians.

5.4.3. Collectivist Coping Styles, Negative affect, Alcohol Use Coping Motives, and Alcohol Use

Integrating Asian culture values (Kim, Atkins, & Young, 1999) and an amalgamation of primary and secondary control strategies (Weisz et al., 1984), Heppner and colleagues (2006) developed the Collectivist Coping Styles Inventory (CCSI) using a sample of over 3000 Taiwanese college students. Results indicate that some coping styles are strongly related to negative affect and somatic symptoms. Specifically, one of the coping styles, avoidance and detachment is positively associated with negative affect and somatic symptom ($p < .0004$). Heppner et al. (2006) suggested that this coping style, similar to emotion-focused coping (Lazarus & Folkman, 1984), may serve the purpose of tension reduction and only function well for short-term consequences. Tension reduction has been considered to be an important motive for alcohol use (Abbey et al., 1993; Greeley & Oei, 1999; Holahan et al., 2001; Sher, 1987). Drinking for the purpose of reducing tension may seem particularly attractive to those who tend to use emotion-focused coping strategies, as it results in a rapid alleviation of negative emotions (Simons & Gaher, 2005; Veenstra et al., 2007). Building on these findings, we hypothesize that avoidance and detachment coping style would be positively associated with alcohol use coping

motives, which in turn would be positively associated with alcohol use and related problems among treatment-seeking Asian American adults.

5.5.0. Model Summary

In summary, based on the above literature review, we hypothesized that: 1) Stress (i.e. stressful life events, acculturative stress, and family conflicts) would be positively associated with negative affect and somatic symptoms, which in turn would be positively related to alcohol use coping motives. Hence, negative affect and somatic symptoms would be explored as mediators of the relationship between stress and alcohol use coping motives; 2) Negative affect and somatic symptoms would be positively associated with alcohol use coping motives and avoidance and detachment style, which in turn would be positively related to alcohol use and related problems. Hence, alcohol use coping motives and avoidance and detachment coping style would be explored as mediators of the relationship between negative affect/somatic symptoms and alcohol use and related problems. Measures of negative affect and somatic symptoms would be correlated. Furthermore, we hypothesized that the culturally-relevant model would produce significantly better model-data fit, relative to the classic stress and coping model.

5.5.1. Additional Consideration for Proposed Models

Developmental research suggests that risk processes of developing alcohol use disorders are expected to be bidirectional (Hussong, Jones, Stein, Baucom, & Boeding, 2011). Using the experience sampling method, Hussong and colleagues (2001) found that an increase in state-level negative emotions led to risk for greater drinking among college students. These drinking episodes predicted subsequent increase in state-level negative emotions. These findings suggest that there is a bidirectional relationship between negative affect and alcohol use in the development of alcohol use disorders among young adults. Evaluating the cyclical relationship

between state-level affect and alcohol in the current study is not feasible since we only measured trait-level affect.

6.0.0. Method

6.1.1. Participants and Recruitment

Participants were recruited from a large community mental health agency located in the northwest of U.S. The agency provided linguistically sensitive treatment for substance use problems. Most counselors were of Asian American backgrounds. Clients who did not speak English or preferred to speak their native language were matched with a counselor who speaks the native language. Interpreters were utilized in group therapy sessions. Given that most clients were referred by the criminal justice system, counselors worked closely with the system. For study inclusion, participants must: 1) Be between the ages of 18 and 70; 2) identify themselves as Asian or mixed race including an Asian heritage; 3) Speak at least one of the following languages: English or Vietnamese; 4) Have been admitted to treatment for Alcohol Dependence or Alcohol Abuse based on criteria established by the Diagnostic and Statistical Manual of Mental Disorders-IV-TR (American Psychiatric Association, 2000).

Demographic characteristics of the participants are presented in Table 1. Response categories for some items (e.g., years of education, language preference) were collapsed to aid interpretation. One-hundred-and-fifteen individuals were invited to participate in the study, and 20% (n = 23) declined to participate. Individuals declined because they: (1) did not feel comfortable with being interviewed individually; (2) did not feel confident in their ability to speak about their experience; (3) could not attend the interview due to schedule conflicts with work; and/or (4) could not attend the interview due to transportation issues.

Participants (*N* = 92) were mostly foreign-born males with an average age of 39.66 (*SD* = 11.3) years. Most foreign-born participants entered the U.S. as immigrants (43%) or refugees (41.8%). Foreign-born participants reported spending an average of 23.98 years (*SD* = 8.34) in the U.S. In terms of current immigration status, approximately half of the participants reported being U.S. citizens and the remaining indicated that they are immigrants (26.1%) or refugees (17.4%). Vietnamese is the largest ethnic group (36.9%) followed by Cambodian (18.5%), Laotian (11.9%), and Filipino (8.7%). The remaining participants (23.9%) reported a wide array of ancestries including East Asian (i.e. Chinese, Korean, and Japanese), Mongolian, and Thai. Approximately one fifth of the participants reported that they are married or in a relationship. Participants reported an average of 10.98 years of education (*SD* = 3.78) and mean annual income was $9,000 to $9,999 in the past year. Close to 90% of participants reported that English was not their first language. However, only 20% of participants were interviewed in Vietnamese, and the remaining were interviewed in English. With regard to language preference, participants were roughly spilt between thinking in their native language (46.7%) and in English (44.6%). The majority of participants sought treatment due to a legal mandate stemming from DUI (Driving while Under the Influence) (81.5%) or another alcohol-related arrest (13%). Among participants with at least one DUI in their lifetime, approximately half had one DUI and the remaining had two or more DUIs. Finally, participants were interviewed approximately six months following treatment admission (*M* = 195.14, *SD* = 222.89).

6.1.2. Measures

Data were collected using English-language instruments and instruments in Vietnamese. Vietnamese versions of the Informed Consent and interview questionnaire were translated and back-translated for accuracy by undergraduate research assistants. A translation company was

then hired to proofread all materials and revisions were made if necessary. Gender, nativity, age, immigration status, ethnicity, partnership status, education, income, native language status, language preference, reasons for seeking treatment, number of DUI, and number of days from treatment admission to interview were assessed via self-report. All measures were selected based on adequate validity and reliability in prior studies.

The report of Cronbach' alpha is common practice in psychological research, although researchers do not necessarily agree on what it measures. Researchers do not agreed on whether alpha is a measure of internal consistency, the degree to which responses are consistent across items within a measure (e.g., Schmitt, 1996; Sijtsma, 2009). What researchers do agree on is that alpha is an index of interrelatedness of items. Although there is no gold standard for indicating the precise quality of reliability coefficients, Kline (2011) provided the following guidelines. Reliability coefficients around 0.90 are considered "excellent", values around 0.80 are "very good", and values around 0.70 are "adequate". If reliability coefficients are below 0.50, most of the observed variance is due to random error, which is considered unacceptable.

Outcome Variable

Alcohol Use Related Problems: Participants were asked to report their alcohol use related problems in the 12-month period prior to treatment admission. The Short Inventory of Problems (SIP; Blanchard, Morgenstern, Morgan, Labouvie, & Bux, 2003), a 15-item measure, was used to assess impulse control, social responsibility, and physical, interpersonal, and intrapersonal consequences in the one year prior to treatment admission. Response ranges from 0 (not at all) to 3 (very much). Reliability of SIP in a prior study based on treatment-seeking individuals with substance use problems was excellent ($\alpha = 0.96$) (Bowen et al., 2009). Reliability in this study

was also excellent ($\alpha = 0.93$). Summary scores of the 15 items were used for the purpose of path analysis.

Independent Variables for Aim 1

Stressful life events: Stressful life events were measured with an assessment tool used in the National Epidemiology Survey on Alcohol and Related Conditions (Dawson, Grant, & Ruan, 2005). Participants were asked whether they experienced 20 different types of stressful life events in the 12-month period prior to treatment admission. These events represent four categories: (a) health-related stress: death of someone close, serious illness of self or someone close; (b) social stress: change in living situation, trouble with boss/co-worker, change of job responsibilities, separation/ divorce/breakup, problems with neighbor/friend/relative; (c) job stress: job loss, sustained unemployment; and (d) legal stress: major financial crisis, own or family member's trouble with police/arrest, criminal victimization of self or family member. In addition to dichotomous measures of whether each of stressor is experienced, a continuous measure of stress was created based on the total number of stressful life events reported. Participants were also asked to report any additional stressors that were not covered by the questionnaire. This was to ensure that stressors that may be unique to Asian Americans were included in the analysis (Caetano et al., 1998; Lin, Masuda, & Tazuma, 1984; Makimoto, 1998). Results indicate that no participants reported additional stressors. Summary scores of the 20 items were used for the purpose of path analysis. We elected not to report Cronbach's alpha for this scale because we do not have theoretical reasons to believe that all of these items should be interrelated. For example, there is no reason to believe that endorsement of death of someone close to the participant would be associated with endorsement of his or her legal problems.

Negative Affect: 1) Anxiety: Anxiety was assessed using the Beck Anxiety Inventory (BAI; Beck & Steer, 1990), which consists of 21 items, each describing a common symptom of anxiety. The participant was asked to rate how much he or she has been bothered by each symptom over the past month on a 4-point scale ranging from 0 (not at all) to 3 (severely). Reliability of the BAI in a clinical sample was excellent ($\alpha = 0.94$) (Fydrich, Dowdall, & Chambless, 1992). Reliability in this study was very good ($\alpha = 0.87$). Summary scores of the 21 items were used for the purpose of path analysis.

2) Depression: Depression was assessed using the Beck Depression Inventory-II (BDI-II; Beck, Steer & Brown, 1996), which is a 21-item measure that assesses specific symptoms of depression. The participant was asked to rate how much he or she had been bothered by each symptom over the past month on a 4-point scale ranging from 0 (not at all) to 3 (severely). Reliability of BDI-II in a sample of treatment-seeking individuals with substance use problems was excellent ($\alpha = 0.92$) (Witkiewitz & Bowen, 2010). Reliability in this study was very good ($\alpha = 0.87$). Summary scores of the 21 items were mean-centered for the purpose of path analysis.

Alcohol Use Coping Motives: A 5-item scale was used to assess frequency of drinking to manage or cope with negative emotions (Cooper, 1994). The participant was asked to rate how often he or she drinks to cope with negative emotion on a 4-point likert scale, ranging from 1 (almost never/never) to 4 (almost always). Reliability of this scale in a prior study was very good ($\alpha = 0.84$) (Cooper, 1994). Reliability in this study was also very good ($\alpha = 0.87$). Summary scores of the five items were used for the purpose of path analysis.

Alcohol Use: Participants were asked to report their alcohol use in the 90 days prior to treatment admission. Alcohol consumption was assessed by the Timeline Follow-back (TLFB; Sobell & Sobell, 1992). The TLFB assesses daily use of alcohol using a standard drink conversion chart. It

has demonstrated good reliability and validity with in-person administration (Sobell, Brown, Gloria, & Sobell, 1996). The product of frequency (total number of drinking days) and quantity (drinks per drinking day) was computed for the purpose of path analysis.

Independent Variables for Aim 2

Acculturative Stress: A subscale of the Hispanic Stress Inventory (Cervantes, Padilla, & Salgado, 1991) was chosen to create the Acculturative Distress Scale (ADS). The ADS was used in the National Latino and Asian American Study and evidenced fair reliability (α = .70) (Alegria et al., 2004). This 9-item scale measures a wide array of stressors (e.g., Do you feel guilty for leaving family or friends in your country of origin?) on a dichotomous response. Reliability of the ADS was fair in this study (α = 0.62). One item was reversed coded and summary scores of the 9 items were used for the purpose of path analysis.

Family Conflicts: The Social Interactions Scale (SIS) measures positive and negative social interactions (family, friend, and spouse) on a 4-point Likert scale ranging from 1 (none at all) to 4 (a lot) (Kessler et al., 1994). SIS was originally derived from a scale developed by Turner and colleagues (1983). For the purpose of the study, only family and spouse subscales were administered. Each subscale has 11 paralleled items that assess perceived support and conflicts in the 12-month period prior to treatment admission. With regard to support, items measure perception of how much family members care and offer help. With regard to conflicts, items measure how much family members argue, criticize, let each other down, and get on each other's nerves. Hwang's research showed that the reliability of these scales were very good among Chinese Americans (α = 0.88 - 0.84) (Hwang, Wood, Fujimoto, 2010; Hwang, Myers, & Takeuchi, 2000). We were not able to administer the significant other subscale for most participants given that most reported being single or divorced. Therefore, due to small sample

size, this subscale was not utilized in the final analyses. Items measuring perceived support were reverse coded and summary scores of all 11 items of the family subscale were computed to form a global conflict measure. Reliability of this global conflict measure was adequate (α = 0.78). The summary scores of these items were used for the purpose of path analysis.

Collectivist Coping Behavior: Collective Coping Styles inventory (CCSI; Heppner et al., 2006) is a 30-item questionnaire used to measure coping behavior in response to the most stressful life event occurring in the 12-month period prior to treatment admission. CCSI is composed of five factors: acceptance, reframing, and striving; family support; religion-spirituality; avoidance and detachment; and private emotional outlets. CCSI and factors also demonstrated appropriate concurrent and discriminant validity (Heppner et al., 2006). For the purpose of the analysis, we only utilized the avoidance and detachment subscale, which includes the following items: (1) saved face by not telling anyone, (2) pretended to be ok, (3) chatted with people about the stressful event on the Internet in order to gain support, (4) avoided thinking about the stressful event for a short time for the peace of mind, and (5) kept my feelings within myself in order not to worry my parents. Participants were asked to report the event and to rate how helpful the particular coping strategy is when facing the most stressful event on a 5-point scale ranging from 0 (never used this strategy/not applicable) to 5 (a tremendous amount of help). The avoidance and detachment subscale exhibited adequate reliability in a prior study (α = 0.77) (Heppner et al., 2006). In the current study, almost half of participants (44.6%) reported DUI or another alcohol-related arrest as the most significant stressor in the year before entering treatment. Approximately one third reported financial problems and one quarter reported stressors of an interpersonal nature (e.g., illness or death of a family member). Reliability of the avoidance and

detachment subscale was fair in this study (α = 0.64). Summary scores of the 5 items were used for the purpose of path analysis.

Somatic Symptoms: Somatic symptoms were measured by 6 items in the Brief Symptom Inventory (BSI: Derogatis & Spencer, 1982). We added an additional item to allow participants to report a somatic symptom that was not listed in the scale. The participant was asked to rate how much he or she had been bothered by each symptom in the past month on a 5-point scale ranging from 0 (not at all) to 4 (extremely). The BSI exhibited excellent reliability in an Asian American sample (α = 0.97) (Lau, Jernewall, Zane, & Myers, 2002). The somatic subscale evidenced adequate reliability (α = 0.74) in the present study. Summary scores of the 7 items were used for the purpose of path analysis.

6.1.3. Interview Procedures

All procedures were approved by the University of Washington Institutional Review Board. Research staff met with clients individually before the start of a group therapy session or in the beginning of an individual counseling session to introduce the study. If a client expressed interest, research staff proceeded with screening questions to determine whether the person meets the four eligibility criteria described above. Eligible individuals were scheduled for an individual interview immediately.

Data were collected through the administration of semi-structured interviews. Interviews were conducted by Asian American research assistants who held degrees in Psychology, Public Health, or Social Work. Research assistants were trained using an interview guide developed by the PI. Interviews were conducted individually and each took approximately 90 to 120 minutes. Most interviews were completed in one session, with some completed in two to three sessions. This was done in order to accommodate participants' schedules and to reduce performance issues

stemming from fatigue and/or low literacy level. Participants were informed that the interviews were confidential, and that the information would be used only for research and not shared with staff at our partner agency. Participants were each compensated with a $40 gift card to a local grocery store.

6.1.4. Data Analysis Plan

A brief description of proposed analyses is provided below. Three sets of analyses were used for the proposed study:

Descriptive Data Analysis: The univariate distributions for each of the main variables were described. The initial statistics include frequency distributions, measures of central tendency, and variation.

Bivariate analyses: Bivariate correlations were computed between all study variables and scatter plots were used to detect outliers or other distributional abnormalities. Sensitivity to the influence of outlier cases and possible biases due to non-normal distributions were examined. We did not find it necessary to eliminate extreme values given that interviews were conducted individually and in person, thus reducing the likelihood of data collection errors.

Path analysis: The selection of path analysis was based on its utility in estimating unique contribution of each variable, while avoiding violations of guidelines for sample size that would occur in a fully latent variable model (Kline, 2005). As reported in the Measure section, all scales were appropriate for path analysis, as they exhibited fair to excellent reliability and the distributions of the scale scores were reasonably close to normal (see Table 2). Variables assessed by some scales were considered as latent constructs with single indicators (i.e. scale score). Although this approach is less common in psychology, it is common in economics and sociology (Beadnell, Baker, Gillmore, Morrison, Huang, & Stielstra, 2008; Sagan & Pawelak,

2013; Shen & Takeuchi, 2001). Scores from a single indicator are unlikely to be both reliable and valid and structural regression models assume the lack of measurement error (Kline, 2011). Not accounting for measure error may lead to biased regression parameters, in which the "true" value of the regression coefficients or coefficient of correlation between latent variables is weakened by unreliable indicators (Sagan & Pawelak, 2013). This may ultimately lead to reduction in the explanatory power of the model (Kline, 2011; Sagan & Pawelak, 2013). One alternative is to account for measurement error by fixing the residual variance to that estimated by Cronbach's alpha: error variance = (1 - Cronbach's α) X observed variance (Kline, 2011). Such approach has been used to evaluate research on theory of reasoned action (Beadnell, Baker, Gillmore, Morrison, Huang, & Stielstra, 2008). We used the statistical package Mplus 4.0 (Muthén & Muthén, 2004). Regression coefficients of the model using the Maximum Likelihood estimation were obtained.

The overall fit for each model was assessed by using the chi-square statistics, Tucker-Lewis index (TLI), comparative fit index (CFI; Bentler, 1990), the root-mean-square error of approximation (RMSEA; Hu & Bentler, 1999), and standardized root mean square residual (SRMR). Fit would be considered acceptable when chi-square statistic is non-significant ($p > 0.05$), TLI and CFI are greater than 0.95, RMSEA is below 0.06, and SRMR is less than 0.08 (Kline, 2005; Tabachnick & Fidell, 2001). Prior studies indicate that TLI, CFI, RMSEA, and SRMR perform well for detecting model misspecification and do not depend on sample size (Fan et al., 1999; Hu & Bentler, 1998, 1999; Jackson, 2007; Jackson, Gillaspy, & Purc-Stephenson, 2009; Marsh, Balla, & Hau, 1996; Marsh, Hau, Balla, & Grayson, 1998). In addition to examining global fit measures, we used normalized residuals for covariances, correlations, and residual correlations; modification indices; and parameter estimates to evaluate model fit.

Normalized residuals and modification indices were used to determine if a particular relation is accounted for (Bollen, 1989; Hayduk, 1988; Jackson et al., 2009). Furthermore, normalized residuals were used since not all standardized residuals could be computed by Mplus (Muthén & Muthén, 2007). Modifications based on modification indices were only used when they were practically and theoretically plausible to avoid producing results based on chance variations in this specific sample (MacCallum, 1995; Jackson et al., 2009). Magnitudes of and signs of the parameter estimates were report to aid interpretation of the model. We first tested the utility of the classic stress and coping model (hypothesis 1) (see Figure 2). The variables in this analysis were stressful life events, depression, anxiety, alcohol use coping motives, alcohol use, and related problems. Then, we estimated the expanded model that included culturally-relevant variables (hypothesis 2) (see Figure 3). Finally, to determine whether the enhanced model improved prediction of the original model, we compared the Akaike's Information Criterion (AIC) and Bayesian's Information Criterion (BIC) values of these models. Smaller values indicate better data-model fit.

7.0.0. Results

7.1.1. Univariate Distributions

Univariate distributions for each of the main variables are presented in Table 2. We also computed statistics for alcohol use frequency and quantity to aid interpretation of overall findings. Results reveal that variables in the models were reasonably normally distributed (Field, 2005), with the exception of alcohol use (M = 85.77, SD = 181.46, *skewness* = 2.98). The dependent variable as measured by SIP was normally distributed (M = 18.22, SD = 12.87, *skewness* = 0.32).

7.1.2. Bivariate Correlations

We examined bivariate relationships among all variables included in the present investigation (Table 3). Findings were not entirely consistent with hypotheses. Number of stressful life events was associated with depression, anxiety, and somatic symptoms. Acculturative stress was related to depression, but it had no significant association with anxiety or somatic symptoms. Family conflict was associated with somatic symptoms and alcohol use coping motives, but it did not have a significant relationship with depression or anxiety. Depression, anxiety, and somatic symptoms were highly correlated. Avoidance and detachment coping style was positively related to anxiety and somatic symptoms, but it did not have a significant relationship with depression or alcohol use coping motives. Alcohol use coping motives were related to depression, anxiety, somatic symptoms, alcohol use, and related problems. Alcohol use did not have a significant association with alcohol use related problems. Several significant associations were found and these pathways were not directly tested in the models: number of stressful life events was associated with acculturative stress and alcohol use. Depression was related to alcohol use related problems. Anxiety and somatic symptoms were related to alcohol use. Finally, number of stressful life events and family conflicts were associated with alcohol use coping motives.

7.1.3. Power Estimation

Kline (2005) suggested 10 to 20 participants per parameter estimate would provide a sufficient sample size for path analysis. Based on this guideline, we needed 110 to 220 participants to test hypothesis 1, suggesting that the current sample size is insufficient to evaluate the original stress and coping model. To test hypothesis 2, we needed 290 to 580 participants, indicating that it is severely underpowered to evaluate the culturally-relevant model. Thus, findings must be interpreted with caution and should be viewed as preliminary.

7.1.4. Path Analyses

With regard to hypothesis 1, results reveal poor model-data fit based on a priori cut-off for fit indices: χ^2 (10) = 15.117, p = 0.034, TLI = 0.760, CFI = 0.888, RMSEA = 0.112 (*CI* = 0.029 - 0.191), SRMR = 0.080, AIC = 772.159, BIC = 817.551, R^2 = 0.167. Based on the value of the lower bound of the 90% confidence interval (0.029), the close-fit hypothesis could not be rejected. Base on the value of the upper bond of the 90% confidence interval (0.191), the poor-fit hypothesis could not be rejected. Most residuals were within the range of normal distribution (i.e. < |1.96|) (Muthén & Muthén, 2007). However, the residual between stressful life events and alcohol use fell outside of the range and modification indices also suggest adding this path would improve model fit by 7.884. Although this path was not specified a priori, there is theoretical (Conger, 1956) and empirical support (Brennan et al., 1999; Cole et al., 1990; Cooper et al., 1992; Dawson et al., 2005; Frone et al., 1994; Glass et al., 1995; José et al., 2000; Perreira & Sloan, 2001; Romelsjo¨ et al., 1991) for the direct relationship between number of stressful life events and alcohol use. Thus, this path was added to the subsequent model to improve model fit. Results reveal acceptable model-data fit based on a priori cut-off fit indices: χ^2 (9) = 6.278, p = 0.393, TLI = 0.990, CFI = 0.996, RMSEA = 0.022 (*CI* = 0 - 0.139), SRMR = 0.048, AIC = 994.106, BIC = 997.063, R^2 = 0.165. Based on the value of the lower bound of the 90% confidence interval (0), the close-fit hypothesis could not be rejected. Base on the value of the upper bond of the 90% confidence interval (0.139), the poor-fit hypothesis could not be rejected. Examination of normalized residuals provides further support for acceptable model fit, as all residuals were within the range of normal distribution. Given that fit indices and normalized residuals indicate reasonable fit and modification indices lack theoretical support, we elected not to make further modifications. Results of the chi-square difference test indicate that the modified

model produced significantly better model-data fit relative to the original stress and coping model, $\chi^2_D(1) = 8.839$, $p < 0.005$. Number of stressful life events was significantly associated with depression and anxiety ($\beta = 0.282$, $p < 0.01$ and $\beta = 0.265$, $p = 0.01$, respectively). Depression was significantly related to alcohol use coping motives ($\beta = 0.318$, $p < 0.05$), which were related to alcohol use ($\beta = 0.258$, $p < .05$). Coping motives were significantly associated with alcohol use related problems ($\beta = 0.396$, $p < .001$). Contrary to predictions, alcohol use was not significantly associated with alcohol use related problems. The additional path between number of stressful life events and alcohol use was significant ($\beta = 0.317$, $p = 0.001$). Standardized coefficients, standard errors, and *p* values for each pathway are presented in Table 4 and a visual of the model is presented in Figure 4.

With regard to hypothesis 2, findings indicate acceptable model-data fit based on a priori cut-off fit indices: $\chi^2(26) = 14.941$, $p = 0.726$, TLI = 1.026, CFI = 1.000, RMSEA = 0.000 (*CI* = 0.000 - 0.069), SRMR = 0.045, AIC = 1326.802, BIC = 1442.804, $R^2 = 0.163$. Based on the value of the lower bound of the 90% confidence interval (0), the close-fit hypothesis could not be rejected. Base on the value of the upper bond of the 90% confidence interval (0.069), the poor-fit hypothesis could not be rejected. All normalized residuals were within the range of normal distribution. Given that fit indices and normalized residuals already indicate acceptable fit and modification indices lack theoretical support, we elected not to make further modifications. Number of stressful life events was positively associated with anxiety ($\beta = 0.321$, $p < 0.05$) and somatic symptoms ($\beta = 0.390$, $p < 0.005$) but not with depression. Acculturative stress was significantly related to depression ($\beta = 0.371$, $p < 0.05$) but not with anxiety or somatic symptoms. Family conflicts were significantly associated with somatic symptoms ($\beta = 0.330$, $p < 0.05$) but not with depression or anxiety. Alcohol use coping motives were predicted by

depression ($\beta = 0.353$, $p < 0.05$) only. Coping motives were significantly associated with alcohol use and related problems ($\beta = 0.281$ and $\beta = 0.395$, $p < .01$, respectively). Contrary to predictions, alcohol use was not significantly associated with alcohol use related problems. Based on AIC and BIC values, the culturally-relevant model did not produce better model fit relative to the original stress and coping model. Standardized coefficients, standard errors, and *p* values are presented for each pathway in Table 5.

Findings indicate a high association between anxiety and somatic symptoms ($\beta = 0.922$, $p < 0.001$), suggesting the presence of extreme collinearity. There are two methods for dealing with extreme collinearity: Eliminate one of the variables or combine redundant ones into a composite (Kline, 2011). The latter method is not feasible, given that BAI and BSI have different likert scales. To explore whether we should eliminate anxiety or somatic symptoms, we ran two separate models and compared them to the proposed culturally-relevant model. In the first model, we removed anxiety. Findings indicate acceptable model-data fit based on a priori cut-off fit indices: χ^2 (25) = 16.378, $p = 0.497$, TLI = 1.016, CFI = 1.000, RMSEA = 0.000 (*CI* = 0.000 - 0.091), SRMR = 0.058, AIC = 1143.178, BIC = 1236.484, $R^2 = 0.164$. Based on the value of the lower bound of the 90% confidence interval (0), the close-fit hypothesis could not be rejected. Base on the value of the upper bond of the 90% confidence interval (0.091), the poor-fit hypothesis could not be rejected. All normalized residuals were within the range of normal distribution. Given that fit indices and normalized residuals already indicate acceptable fit and modification indices lack theoretical support, we elected not to make further modifications. Standard errors for the following three paths decreased when anxiety was removed from the culturally-relevant model: Depression and coping motives, somatic symptoms and coping motives, and somatic symptoms and avoidance and detachment coping styles. Larger standard

errors of path coefficients mean that estimated strengths of effects between variables may vary substantially between samples, indicating less precision (Asher, 1983; Petraitis, Dunham, & Niewiarowski, 1996). The removal of anxiety symptoms appears to reduce collinearity. Standardized coefficients, standard errors, and *p* values in the revised model and the full model are presented for each pathway in Table 7.

In the second model, we removed somatic symptoms from the proposed culturally-relevant model. Findings indicate acceptable model-data fit based on a priori cut-off fit indices: χ^2 (25) = 14.725, p = 0.615, TLI = 1.052, CFI = 1.000, RMSEA = 0.000 (*CI* = 0.000 - 0.082), SRMR = 0.057, AIC =1230.762, BIC =1324.068, R^2 = 0.164. Based on the value of the lower bound of the 90% confidence interval (0), the close-fit hypothesis could not be rejected. Base on the value of the upper bond of the 90% confidence interval (0.082), the poor-fit hypothesis could not be rejected. All normalized residuals were within the range of normal distribution. Given that fit indices and normalized residuals already indicate acceptable fit and modification indices lack theoretical support, we elected not to make further modifications. Standard errors for the following three paths decreased when somatic symptoms were removed from the proposed culturally-relevent model: depression and coping motives, anxiety and coping motives, anxiety and avoidance and detachment coping styles. Thus, the removal of anxiety symptoms appears to reduce collinearity. While removing somatic symptoms or anxiety from the culturally-relevant model both reduced collinearity, we chose to remove somatic symptoms. Whereas anxiety has a component of somatic symptoms (e.g., difficulty in breathing, faint/light headed), somatic symptoms do not necessarily capture anxiety. Thus, retaining anxiety and remove somatic symptoms appear to be reasonable. Based on AIC and BIC values, the revised culturally-relevant model did not produce better model fit relative to the original stress and coping model.

Standardized coefficients, standard errors, and *p* values for the revised model and the full model are presented for each pathway in Table 8 and a visual of the model is presented in Figure 5.

To further examine the revised culturally-relevant model, we conducted an additional model, where the culturally-relevant paths were fixed to 0. Findings indicate poor model-data fit based on a priori cut-off fit indices: χ^2 (25) = 37.648, p = 0.037, TLI = 0.779, CFI = 0.853, RMSEA = 0.079 (*CI* = 0.019 – 0.125), SRMR = 0.093, AIC = 1239.685, BIC = 1315.339, R^2 = 0.165. Based on the value of the lower bound of the 90% confidence interval (0.019), the close-fit hypothesis could be rejected. Base on the value of the upper bond of the 90% confidence interval (0.125), the poor-fit hypothesis could not be rejected. Several normalized residuals were outside of the range of normal distribution: family conflict and coping motives, acculturative stress and depression, and anxiety and avoidance and detachment coping styles. Findings suggest that these paths should be estimated. Although it is common for researchers to estimate these paths in order to create a new model, we elected not to do so to avoid creating biased results that are highly specific to a small sample. Standardized coefficients, standard errors, and *p* values for this model and the full model are presented for each pathway in Table 9.

Given the lack of relationship between alcohol use and related problems found in both models, we conducted a post-hoc, repeated-measure ANOVA to understand participants' perceptions of different types of alcohol use related problems. Descriptive statistics were computed for each type of alcohol-related problems (see Table 2). Results reveal significant differences in types of problems endorsed, F (4, 90) = 16.68, $p < 0.005$. Tests of the six post-hoc comparisons were conducted using Bonferroni adjusted alpha levels of 0.005 per test (0.05/10). Results indicate that impulse control (M = 4.28, SD = 2.71) was significantly higher than

physical problems (M = 3.22, SD = 2.97) (F (1, 27) = 1.06, p = 0.005). No other contrast reached statistical significance.

8.0.0. Discussion

The current study evaluated two stress and coping models of treatment-seeking Asian Americans. The majority of participants were foreign-born males with low socioeconomic status, who sought treatment due to a legal mandate stemming from DUI or from another alcohol-related arrest. First, we examined the classic stress and coping model proposed by Wills and Shiffman (1985) and supported by a body of literatures (Abbey et al., 1993; Cappell & Greeley, 1987; Cooper et al., 1992; Cooper et al., 1993; Cooper et al., 1988; Greeley & Oei, 1999; Holahan et al., 2001; Khantzian, 1974; Pearlin & Radabaugh, 1976; Sher, 1987). Findings of the revised path analysis reveal acceptable model-data fit. As hypothesized, number of stressful life events was positively associated with depression, which in turn was positively related to alcohol use coping motives. Alcohol use coping motives were positively related to alcohol use and related problems. Above and beyond the hypothesized pathways, number of stressful life events was directly associated with alcohol use. Although the path between number of stressful life events and alcohol use has theoretical and empirical support, it was a post-hoc modification. MacCallum (1986) posited that such modification may benefit from chance variations that are specific to the sample. Thus, modifications should be viewed as preliminary until there is an opportunity to cross-validate it in an independent sample.

Contrary to hypotheses, while anxiety was significantly associated with stressful life events, it was not significantly associated with alcohol use coping motives. This lack of relationship between anxiety and coping motives may be attributed to low average anxiety symptoms (M = 8.91, SD = 9.47), resulting in low predictability. It may also be attributed to

interpreting the self-medication hypothesis too broadly (Kushner, Abrams, Thuras, & Hanson, 2000). Specifically, drinking to cope with anxiety appears to be predicted by anxiety-related personality traits (e.g., anxiety sensitivity) (Kushner et al., 2000). Anxiety sensitivity predicted substance use in negative emotional situations above and beyond trait anxiety in a group of individuals with anxiety disorders and substance abuse problems (DeHaasa, Calamaria, Bairb, & Martina, 2001). Furthermore, anxiety sensitivity was strongly associated with coping motives for alcohol use (Novak, Burgess, Clark, Zvolensky, & Brown, 2003; Stewart, Karp, Pihl, & Peterson, 1997; Stewart & Zettlin, 1995; Stewart, Zvolensky, & Eifert, 2001). Taken together, the self-medication processes operate robustly in only a subgroup(s) of individuals with an anxiety disorder, rather than those with problematic alcohol use who may not suffer from an anxiety disorder. Another possible explanation for the lack of relationship between anxiety and coping motives is the strong correlation between depression and anxiety ($\beta = 0.509$, $p < 0.001$), which has been found in other studies (Krasucki, Howard, & Mann, 1998; Muntingh, 2001). Thus, it is likely that the variances predicted coping motives were shared between depression and anxiety. Miller and Chapman (2011) suggest that depression and anxiety are not entirely distinct concepts and not phenomena that should be separated. They recommended use appropriate study design to understand the specific relationship. For instance, include depressed individuals with varying levels of anxiety and/or anxious individuals with varying levels of depression. Without utilizing such design, it is difficult to determine how much variance in coping motives is predicted by depression vs. anxiety.

Contrary to hypotheses, we did not find a significant relationship between alcohol use and related problems, suggesting that perception of problems was not associated with consumption. Existing evidence provides some support for this finding. Asian Americans with

DSM-IV substance dependence were significantly less likely than Caucasians with the same diagnosis to have been in treatment in a 12-month period (Sakai et al., 2005). Asian Americans who reported having had substance dependence treatment in the same period did not think that they needed treatment (Sakai et al., 2005). The lack of problem recognition among Asian Americans has also been found in three prior studies (Masson et al., 2013; Niv, Wong, & Hser, 2007; Park, Shibusawa, Yoon, & Son, 2010). While participants reported consequences in the social, interpersonal, intrapersonal, physical, and impulse-control domains as measured by SIP, significant differences exist in frequency of endorsement. Specifically, impulse control was the most significant consequence. A high level of endorsement of impulse-control related problems (e.g., took foolish risks because of drinking) may be explained by the high rates of alcohol-related arrests in this sample, and a possible tendency to conceptualize addiction as a disease of loss of control in the Asian culture as demonstrated by one prior study (Cho & Faulkner, 1993).

We then examined the proposed heuristic culturally-relevant model by adding culturally-specific stressors (i.e. acculturative stress and family conflicts) and culturally-specific mediators (i.e. somatic symptoms and avoidance and detachment coping style) to the first model. Findings of the path analysis indicate acceptable model-data fit, but collinearity was present as a result of simultaneous inclusion of anxiety and somatic symptoms. To reduce collinearity, we removed somatic symptoms from the model. This improvement did not produce better model-data fit, relative to the original stress and coping model. Number of stressful life events was a significant predictor of anxiety, but not of depression. Acculturative stress was significantly associated with depression, but not with anxiety. Family conflicts were not associated with depression or anxiety. Avoidance and detachment coping style was predicted by anxiety only. Coping motives were predicted by depression, but not by anxiety. Finally, alcohol use coping motives maintained the

positive association with alcohol use and related problems, and there remained no relationship between alcohol use and related problems. In examining these findings, it is important to keep in mind that the power for evaluating this model was severely limited due to insufficient sample size.

Acculturative stress and stressful life events predicted alcohol use and related problems through differential pathways. Whereas acculturative stress exerted its influence through depression, stressful life events did so through anxiety. After both acculturative stress and family conflicts were entered into the model, number of stressful life events was not associated with depression, despite that this relation was found at a bivariate level and in the original stress and coping model. These findings illustrate the importance of simultaneously estimating acculturative stress and stressful life events when examining pathways to alcohol use and related problems for this population. To further understand the relationship between acculturative stress and stressful life events, we examined the correlations between acculturative stress and each item of the stressful life events. Acculturative stress was positively associated with a number of stressful life events in the year prior to treatment admission: separation ($r = 27$, $p < 0.05$) or divorce from spouse/partner ($r = 0.23$, $p < 0.05$), job loss ($r = 0.23$, $p < 0.05$), and sustained unemployment ($r = 0.28$, $p < 0.05$). Contrary to hypotheses, acculturative stress was not associated with anxiety at the bivariate level or in the culturally-relevant model. Given that this relationship has been found in prior research (Hiott, Grzywacz, Arcury, & Quandt, 2006; Hovey & Magaña, 2000; Suarez-Morales & Lopez, 2009; Salgado de Snyder, Cervantes, & Padilla, 1990and insufficient) and power is a major concern in the current study, results in the current study must be replicate in an independent sample before we can draw meaningful conclusions regarding this path. Furthermore, prior research that supports the relationship between

acculturative stress and anxiety is based on evaluating anxiety and depression in separate models (Hiott et al., 2006; Hovey & Magaña, 2000; Suarez-Morales & Lopez, 2009; Salgado de Snyder et al., 1990). Current findings suggest the importance of evaluating them simultaneously, as it may shed light on different pathways of alcohol use and other health behaviors.

Family conflicts were not associated with depression or anxiety. However, family conflicts and alcohol use coping motives were significantly related at the bivariate level (r = 0.24, $p < 0.05$). Collectively, evidence suggests that, as hypothesized, family conflicts are an important predictor of problematic alcohol use. The current study failed to find the potential explanatory mechanisms, most likely due to measurement issues associated with the family conflict variable. As described earlier, this measure has two subscales: conflicts with a significant other, and conflicts with family members other than significant other. We were not able to utilize the subscale that measured conflicts with significant others because the majority of the participants (78.3%) were not married or in a relationship at the time of the interview. This relationship status may be explained by break-up or divorce prior to treatment admission. In our qualitative study based on a subsample of participants (n = 65), many reported that drinking led to breakup or divorce, and loss of trust from family (Hsu, Tran, Sun, & Larimer, 2013). As a 55-year-old Southeast Asian male indicated, “There’s [have] been arguments with family, like wife and children, because they don’t want me to drink. I ruined my reputation and lose face with my family.” Furthermore, results of SIP indicate that approximately half of the participants reported that drinking “has damaged a close relationship” in the year prior to treatment admission. Taken together, family conflicts appear to be an important predictor of problematic alcohol use, and the measurement issues appear to be the main barrier for establishing this relation in the hypothesized model.

Anxiety was significantly association with avoidance and detachment coping style (β = 0.727, p = 0.002), such that a higher level of anxiety was linked to higher perceived helpfulness of this coping style (e.g., “Saved face by not telling anyone”, “Pretended to be ok”). However, contrary to hypotheses, this coping style was not associated with depression or alcohol use coping motives. Furthermore, bivariate correlations reveal that this coping style had weak associations with alcohol use and related problems. Collectively, the evidence suggests that endorsing this coping style was not necessarily a maladaptive coping strategy for this sample of treatment-seeking Asian Americans. It is important to mention that results are based on cross-sectional data, and it is difficult to evaluate whether perceptions of perceived helpfulness would differ in the short term versus in the long term, and whether this coping style would be functional in the long run. Nevertheless, these results may illustrate the dynamic nature of culture. Two factors may explain these findings. First, most participants reported alcohol-related arrests and financial problems that may or may not stem from the arrest (79.3%) as the most significant stressful event prior to treatment admission. Aspects of avoidance and detachment may be a functional coping style in the context of these stressors and the context of the Asian culture. For instance, disclosing one’s alcohol-related arrest may bring shame to one’s family and lead to ostracism from their community. Therefore, not sharing this stressor with anyone may be a helpful way to cope. Furthermore, disclosing financial problems that may or may not stem from an alcohol-related arrest is difficult for this predominately male sample, given that traditional beliefs regarding gender roles conceptualize men as achievers and providers in order to maintain masculinity (Chua & Fujino, 1999; Ho, 1990; Lu & Wong, 2013). Although a recent study indicates that younger Asian American men are more willing to accept progressive gender ideologies, and wish to be an equal partner with their wives (Quek, Knudson-Martin, Rue, &

Alabiso, 2010), this shift may not have occurred in our study sample based on participants' average age (M = 39, SD = 11.1) and their preference for home culture as indicated by language variables (e.g., "In what language does the participant think?'). Thus, not sharing this stressor with anyone may not be maladaptive in the context of reported stressors and in the cultural context. From a mainstream North American perspective, it is tempting to perceive Asian Americans' coping behaviors as maladaptive. North Americans' norms and expectations generally favor using explicit disclosure to gain social support (Kim, Sherman, & Taylor, 2008). Findings in the current study are consistent with prior research highlighting the crucial role of cultural context and the importance of functional analyses of ethnic minority coping behaviors in their embedded context (Dressler, 1985; Ennis, Hobfoll, & Schröder, 2000; Heppner, 2008; Kim et al., 2008; Stein & Nyamathi, 1998). Notably, Kim and colleagues (2008) conducted a series of work to demonstrate that Asian Americans are more likely to use and benefit from social support that does not involve explicit disclosure of personal stressful events and feelings around these events (Kim et al., 2008; Taylor, Sherman, Kim, Jarcho, Takagi, & Dunagan, 2004; Taylor, Welch, Kim, & Sherman, 2007). Furthermore, Asian Americans are more likely to experience disclosure as an additional stressor when they are made to seek this form of support (e.g., in a mandated treatment setting) (Taylor et al., 2007).

Descriptive statistics indicate that 45.8% of foreign-born participants entered the U.S. as refugees and 18.8% were still refugees at the time of the interview. These refugees (n = 33) are mostly from Southeast Asia: Vietnam (n = 11), Cambodia (n = 11), and Lao (n = 5). These participants reported an average age of 46.73 years (SD = 8.97), came to the U.S. when they were approximately 18 years old (M = 18.39, SD = 11.16), and have lived in the U.S. for close to thirty years (M = 27.82, SD = 6.54). Given the exposure to historical trauma and its association

with unique sociocultural factors, the proposed stress and coping model may not have been sufficient in explaining drinking behaviors in this population. Vietnamese refugees came to the U.S. in two waves (1975; 1977-80) following the Vietnam War. These refugees first fled to camps in various Asian countries and endured stressors such as overcrowding, starvation or poor nutrition, unsafe health conditions, and personal danger (Abueg & Chun, 1996). Cambodian refugees witnessed more than one million Cambodians die of disease, starvation, or execution during the Khmer Rouge era (1975-1979) (Kinzie, 1989). Finally, Laotian refugees were forced to leave their country after Pathet Lao, a communist political movement, took control of Laos in 1979 (Abueg & Chun, 1996). Lao refugees were detained in camps in Thailand before moving to the U.S. (Abueg & Chun, 1996). Based on these historical contexts, refugees are different from immigrants because they came to the country involuntarily, with little resources and preparation for a new way of life in the U.S. (Kunz, 1973; Westermeyer, 1990). Thus, the heuristic culturally-relevant model may not have captured the type of stress they experience and how these stressors may be associated with alcohol use and related problems.

8.1.1. Competing models

Kline (2011) and others (e.g., Jackson et al., 2009) have suggested the importance of evaluating competing models in research that utilizes path analysis and structural equation modeling. One important consideration is the bidirectionality of negative affect and alcohol use. As discussed in the introduction, research utilized the experience sampling method or longitudinal design found a cyclical relationship between negative affect and alcohol use among adolescents and college students, such that drinking leads to greater negative emotions, which in turn predict subsequent increase in negative emotions (Hussong et al., 2001; McCarthy et al., 2005). Another consideration is that negative affect may be an outcome of alcohol use and

related problems, and stressors predict alcohol use and related problems through the influence of coping motives. Parts of this model have been evaluated by previous research on college students (McCreary & Sadava, 2000). A third alternative model is that alcohol use engenders stressful life events, family conflicts, and negative affect (Newcomb & Bentler, 1988). Alcohol use related problems may serve as a mediator between these associations. This pathway has been found in the gambling research on college students, such that fewer gambling problems lead to fewer negative affect (Geisner, Bowen, Lostutter, Cronce, Granato, & Larimer, in press). Finally, some research has evaluated coping motives as a moderator rather than mediators in stress and coping models of alcohol use (e.g., Goldstein, Vilhena-Churchill, Stewart, & Wekerle, 2012; Grant, Stewart, & Mohr, 2009). We elected to conceptualize it as a mediator rather than moderator because participants were treatment-seeking drinkers, who met criteria for alcohol use disorders and should therefore share a common pathway of alcohol use. The well-established literature on drinking-to-cope as a mediator supports this perspective (e.g., Cooper et al., 1995; Goldstein, Flett, & Wekerle, 2010; Grayson & Nolen-Hoeksema, 2005).

8.1.2. Limitations and Strengths

Limitations of the study deserve to be mentioned. Due to the nature of the cross-sectional design, participants' perceptions of alcohol use related problems may be influenced by their arrests. It is uncertain whether participants would have endorsed similar perceptions of problems prior to their arrests. Moreover, this study is limited in making inferences regarding the direction of causality. Therefore, it is difficult to discriminate bidirectional processes. For example, although stressful life events and family conflict were conceptualized as precursors of alcohol use, we cannot rule out the reserve relations. While negative affect was also conceptualized as a precursor of alcohol use, the influence of alcohol use on negative affect cannot be ruled out.

An important methodological issue regarding substance use research on the Asian American population is the use of Asian American as a single category (DHHS, 2001; Zane & Kim, 1994). Extensive review suggests that the use of a single-race category has consequences (DHHS 2001; Zane & Kim, 1994). The Asian American classification masks the social, cultural, and psychological variations that exist among Asian ethnic groups. This can lead to the conclusion that Asian Americans are a model minority, providing justification for allocating less resource to this population. Attempting to avoid these consequences, the present study originally proposed to limit recruitment to Vietnamese and Cambodians. These groups were chosen because Southeast Asians are at high risk to develop substance use disorders based on history of trauma and mental illness (D'Avanzo, 1997; DHHS, 2001), and only a small number of studies have examined alcohol use and related problems among Southeast Asian groups (D'Avanzo & Barab, 2000; Lee, et al., 2008; Wong et al., 2007). Our partner agency supported this decision, as data of treatment program census indicated Southeast Asians as the dominant group. After the recruitment began, we chose to broaden the inclusion criteria to recruit Asian Americans of other ethnic groups because there were significant difficulties with recruiting participants stemming from decreased census in the treatment program.

As indicated in the results section, the current study is underpowered to test the proposed hypotheses. Several challenges diminished our ability to obtain a larger sample size. In the planning phase of the study, we did not anticipate difficulties meeting our recruitment goals since the reported size of the population by our partner agency appeared to be adequate. However, after the recruitment began, we experienced significant difficulties with recruiting participants due to decreased census in the treatment program. Additionally, in the original proposal, we proposed to recruit participants in the early phase of treatment (i.e. no later than

two weeks following treatment admission). However, this was proven to be difficult for a number of reasons. Clients' mistrust and unfamiliarity with research have contributed to difficulties with recruitment in the beginning of the study. These factors have been documented in research with minorities in general (Yancey, Ortega, & Kumanyika, 2006). We believe that repeated exposure to research staff and word-of-mouth among participants helped increase trust and familiarity. Anecdotally, clients reported that they declined to participate or delayed participation because they were too busy with court-mandated requirements when they first entered treatment. To circumvent this issue, our partner agency recommended delaying recruitment to allow clients five to six weeks to become more comfortable with treatment and other requirements. Given these challenges, we broadened the eligibility criteria to recruit participants in both treatment phases (i.e. intensive outpatient and outpatient). To make participants' time worthwhile, we increased the incentive from $25 to $40 in the form of a gift card to local grocery stores, and this resulted in some improvement in recruitment.

The self-reported nature of all measures is another limitation. With this important limitation in mind, we took multiple steps to improve accuracy of self-report (Babor, Stephens, & Marlatt, 1987; Chermack, Singer & Beresford, 1998; Darke, 1998; Del Boca & Darkes, 2003). First, after consulting with our partner agency, we chose to administer all measures via in-person interview in anticipation of low literacy in some participants. Indeed, approximately one fifth of the participants had eight years or fewer of education. By using this method, all participants received maximum assistance (e.g., clarifying instructions) from the interviewer, thereby increasing reliability and validity of the self-report data. Second, participants were assured that responses would be kept confidential. Specifically, given the important role of social context in self-report (Del Boca & Darkes, 2003), we emphasized that data would not be shared with

counselors or probation officers, and researchers were not obligated to respond to a subpoena. These steps may also help reduce demand characteristics. Finally, to enhance the reliability and validity of the alcohol data, we asked questions regarding personal events (e.g., birthday) and holidays to aid participants' memory. Visual aids were used to demonstrate the definition of a standard drink across different types of alcohol. Participants were given as much time as possible to recall alcohol consumption in the 90 days prior to treatment admission. Despite the use of these procedures, we are aware that approximately one third of the participants were interviewed six months after the initial evaluation of treatment admission, thereby further decreasing the reliability of self-report.

Fair reliability was detected in some measures used in this study. Notably, reliability of two measures (acculturative stress, avoidance and detachment coping style) was only in the fair range (Kline, 2011). To circumvent this issue, reliability of each measure was accounted by using an established formula in the literature (Kline, 2011). Although low reliability is concerning, this does not mean that the measurements are unreliable. Statistical results based on a single testing reveal little about the individuals' measurement accuracy reflected by their propensity distribution (Sijtsma, 2009). Furthermore, alpha is affected by number of items in a given scale. This may attribute to the low reliability in the detachment and avoidance coping style scale, which only contains 5 items.

Finally, findings are based on predominantly foreign-born males' (78.3%) perspectives, and the extent to which they are generalizable to U.S.-born Asian Americans or Asian American females are difficult to assess. There is some evidence that perceptions of drinking-related negative consequences may be influenced by gender (MacKinnon & Lapin, 1998; Parker, 1998), although both studies had few or no Asian Americans. In this vein, sample size of the present

study was too small for conducting multigroup comparisons (e.g., young adult vs. adult, Vietnamese vs. Cambodian, refugee vs. non-refugee). Thus, we examined this sample of Asian Americans using an aggregate approach. It has been suggested that research on an aggregate Asian American group might be appropriate when the characteristics under observation are common to more than one Asian American group (DHHS, 2001). We believe that the present study fits this category since Asian American participants in this sample share many commonalities (e.g. treatment-seeking behavior, AUDs). Nevertheless, by approaching Southeast Asians as a homogenous group, we run the risk of misrepresenting the mental health needs of each of the ethnic groups (Kim, 2006).

Despite the limitations, the current study has several strengths. With the help of our partner agency, we had the opportunity to work with a difficult-to-reach population. To the best of our knowledge, this is the first study that examined stress and coping models among treatment-seeking Asian Americans. Given the methods used for data collection, findings have high ecological validity and therefore may be generalizable to Asian American adults seeking alcohol use treatment. In spite of the concerns regarding the use of cross-sectional design, we mapped out a viable pathway for acculturative stress. This may help addressed an important gap in the literature, given that prior studies only evaluated the relationship between a specific type of acculturative stress (i.e. discrimination) and alcohol use among Asian Americans and mechanisms were not examined in these studies (Chae et al, 2009; Gee et al., 2006).

8.1.3. Future Directions for research

Future directions for this line of research deserve to be mentioned. First, models of historical trauma and health behaviors have been proposed for Southeast Asians (Hsu, Davies, & Hansen, 2003) and other populations (e.g., Walters, Simoni, & Evans-Campbell, 2002). The

stressors associated with historical trauma should be used in alcohol research in Southeast Asian refugees. Researchers have postulated that refugees may experience a profound sense of loss when they came to the U.S.- separation from or loss of loved ones, loss of material belongings, loss of their country, and loss of familiar way of life (Abueg & Chun, 1996; Chung & Lin, 1994). Furthermore, low education level and limited job skills are additional factors that may negatively influence the chance of having a successful life in the U.S. (Hsu et al., 2003). Indeed, consistent with statistics of the overall sample, refugees in this study reported an average of 10.21 years of education (*SD* = 4.14). Furthermore, separated from family members, refugees' development may be negatively affected, and they may not have role models to emulate when they have their own children (Carlin, 1990). Although some of these experiences were measured by the acculturative stress and family conflicts scales, we recognize that these measures may not be sophisticated enough to capture the complex stressors engendered by historical traumas. Symptoms of Posttraumatic Stress Disorder in Southeast Asians have been documented in two studies (Gong-Guy, 1987; Kinzie, Frederickson, Rath, Fleck, & Karls, 1984). Without treatment, symptoms may persist and affect alcohol use. Taken together, future research should examine the impact of historical trauma, which may play an important role in understanding drinking behaviors in Southeast Asian refugees.

Second, future research should investigate the relationship between acculturative stress and stressful life events to understand how these two concepts interact to predict models of health behaviors. The importance of this approach has been highlighted in a recent review on health disparities among immigrants/refugees (Edberg, Cleary, & Vyas, 2010). Factors contributing to health are likely to function in a co-occurring and interactive fashion (Edberg et al., 2010). As the relationship between acculturative stress and stressful life events is seldom

examined simultaneously, it is imperative to replicate current findings in Asian Americans and other ethnic minorities. Finally, it remains important to test the hypothesized pathways using longitudinal data with a mixed-method approach, which may provide more in-depth, nuanced perspectives (Edberg et al., 2010). Examining the stress and coping processes of alcohol use in treatment-seeking Asian Americans remains to be an important priority.

8.1.4. Clinical Implications

Before examining the potential clinical implications of the culturally-relevant model, we must first examine the most recent literature on culturally-adapted psychotherapy. Psychotherapy is grounded in a cultural context (Benish, Quintana, & Wampold, 2011; Frank & Frank, 1993; Wampold, 2007; Wrenn, 1962). Conventional treatment is appropriate for many dominant cultural groups within North America and Western Europe but may not be appropriate for ethnic and minority groups (Benish et al., 2011). To address this gap, researchers have formulated models to systematically adapt conventional psychotherapy for ethnic or minority individuals (Benish et al., 2011; Griner & Smith, 2006; Zane, Hall, & Berger, 2009). Specifically, Benish and colleagues (2011) conceptualized psychotherapy in a broader, anthropological context of healing, with a specific emphasis on the acceptability of explanation of illness provided to the client. The underlying assumption is that illness is a culturally shaped experience manifesting in its expression of bodily and mental symptoms, presumed etiology, assumed course, and social inferences (Haidet et al., 2008; Kleinman et al., 2006). In this vein, effective psychotherapies offer adaptive explanations of the client's experience, and provide interventions compatible with the explanations. Using this model, Benish and colleagues (2011) conducted a meta-analysis to evaluate the relative efficacy of culturally adapted psychotherapy versus unadapted psychotherapy. Findings reveal that culturally-adapted psychotherapy is more efficacious than

unadapted psychotherapy, and this difference is solely moderated by adaptation of the illness explanation. Derived from these findings, successful cultural adaptation should adapt the illness explanations in the following ways: (a) inferences about the types of symptoms experienced, (b) assumptions of the etiology of the illness, (c) estimation of the timeline or course of illness, (d) individual postulation about consequences resulting from the illness, and (e) subsequent expectations about what types of treatment would be appropriate. Findings in the current study may offer implications on etiology, course of illness, consequences, and expectations for treatment.

With regard to perceptions of etiology, the current study did not evaluate them, given we used a priori hypotheses to guide our investigation. Nevertheless, results demonstrate the important role of stressful life events, acculturative stress, and associated pathways leading to alcohol use and related problems. To a lesser extent, results also provide some support for family conflicts as an important stressor. In a clinical setting, presenting these findings to a client and determining whether this model fits with his or her illness explanation can be a helpful approach. With regard to timeline or course of illness, results in this study reveal an average of 9.25 days of drinking (*SD* = 16.34) and 7.35 drinks per occasion (*SD* = 5.86) in the 90 days prior to treatment admission, suggesting that heavy episodic drinking is the most common pattern before entering treatment. Thus, individuals' understanding of alcohol use and related problems may be of episodic nature. This illness representation may be incompatible with conceptualizing alcohol addiction as a chronic disease based on the twelve-step approach (Alcoholics Anonymous, 1976; 1981). Thus, such approach and referral for traditional twelve-step meetings may not be as useful as it would be for the mainstream population. With regard to consequences, impulse control was the most significant consequence, suggesting that it is an important aspect of the illness

representation. Furthermore, although it is tempting to believe that family conflicts are an important part of Asian American mental health etiology, this type of problem did not have a high endorsement from participants in this study. Thus, psychotherapies focusing on gaining skills to understand and to cope with family problems may not be compatible with treatment-seeking Asian Americans' illness representations. With regard to expectations for treatment, the weak relationship between consumption and problems suggests that participants are not likely to use consumption to evaluate the severity of their alcohol use related problems and whether they need treatment. Rather, they may be more likely to use negative consequences, particularly impulse-control problems, to evaluate their treatment needs. In this vein, they may be more interested in substance abuse treatment that aims to improve self-control. A number of evidence-based approaches have been developed to address this need. Conducting chain analyses to help individuals understand antecedents of alcohol-related risk-taking is an important first step (Marlatt & Gordon, 1985). Formulating drinking goals and a relapse behavioral plan based on the goals should also be implemented. Given the episodic nature of alcohol use, harm-reduction skills should be taught as a behavioral strategy for maintaining control for those who do not wish to pursue abstinence as a goal (Osilla, Wong, & Zane, 2012). Furthermore, our qualitative study reveals that loss of time in participating in mandated treatment was a major theme of consequences of alcohol-related arrests (Hsu et al., 2013). Thus, treatment programs may wish to offer briefer interventions guided by Motivational Interviewing to meet the needs of Asian Americans with AUDs (Osilla et al., 2012). To improve impulse control across high-risk situations, mindfulness-based relapse prevention may be recommended to individuals, especially to those who experience cravings for alcohol (Bowen et al., 2014; Witkiewitz, Bowen, Douglas, & Hsu, 2012). Finally, coping skills training for acculturative stress should be offered. This type

of training may be best conducted in a group format to provide emotional support for dealing with racism and unfair treatment. Such training should include the following elements: (1) problem solving therapy for managing depression and reducing stressors; (2) communication skills for addressing racism and unfair treatment; and (3) relaxation training for stress reduction. It is important to keep in mind that skills training is not recommended because we assume that there is a skill deficit; rather, the training should be designed to augment existing resiliency possessed by immigrants and refugees. As it is imperative to enhance coping skills for acculturative stress, it is also important to reduce the source of these stressors (e.g., low English language proficiency, chronic unemployment). For instance, connecting individuals to the appropriate resources (e.g., language courses, vocational training) should be part of a comprehensive approach for reducing and managing acculturative stress, which in turn may reduce alcohol use and related problems.

8.1.5. Conclusions

The goals of this study were to examine stress and coping pathways, and establish a framework to understand drinking behaviors in treatment-seeking Asian Americans. Despite limitations, results provide some preliminary support for the heuristic culturally-relevant model. Stressful life events and acculturative stress appear to be important predictors of negative affect. Drinking to cope with depression was a significant pathway, and this tendency is associated with alcohol use and related problems. Findings in this study challenge the myth of Asian Americans as the model minority in the U.S., as it does not accurately reflect the intersectional nature of race and class. The model minority myth may reduce efforts toward improving alcohol education and DUI prevention in this population (Caetano et al., 1998; Leong & Lau, 2001; Lin-Fu, 1988; Nghe, Mahalik, & Lowe, 2003; Sue & Morishima, 1982; Sue, Sue, Sue, & Takeuchi, 1995; Uba,

1994). These findings thus highlight the necessity of further research and clinical efforts to serve Asian Americans of diverse backgrounds, particularly those of lower socioeconomic status (Uba, 1992; Uehara, Takeuchi, & Smukler, 1994; Ying & Hu, 1994; Zane, Hatanaka, Park, & Akutsu, 1994). Of the participants with DUI (n = 78), close to half reported that they had more than one DUI, indicating that refraining from driving while under the influence may require a major cultural shift for immigrants who come from Asian countries. Although some countries in Asia have established a legal limit of blood alcohol content for driving (WHO, 2013), many countries have only recently become aware of the importance of enforcement, prevention, and intervention efforts in DUI (Desapriya, Schimizu, Pike, Subzwari, & Scime, 2007; Kim et al., 2010; Kim, Wong, Goggins, Lau, & Griffiths, 2013; Nagata, Setoguchi, Hemenway, & Perry, 2008; Nguyen et al., 2010; Suriyawongpaisal & Kanchanasut, 2003; Tang et al., 2013), and intimate partner violence involving alcohol intoxication (Oyunbileg, Sumberzul, Udval, Wang, & Janes, 2009).

The lack of association between alcohol use and related problems speaks to the role of culture in perceptions of alcohol use related problems, and the importance of prevention research for Asian Americans. From a public health standpoint, the goal would be to raise awareness of problematic episodic alcohol use and related problems. Furthermore, our qualitative analyses indicate that participants experienced legal problems and loss of privileges (e.g., license suspension) associated with alcohol-related arrests (Hsu et al., 2013). These problems may threaten immigration-related goals (e.g., gaining freedom and economic opportunities), suggesting that alcohol-related arrests may come with a heavy cost for treatment-seeking Asian Americans. The responsibility of understanding U.S. laws regarding alcohol-related arrests is placed on immigrants and refugees. To promote greater public health and safety, it is important to educate Asian American immigrants and refugees about DUI-related laws, and increase

alcohol screening to detect problematic use prior to an alcohol-related arrest. Institutions such as churches, temples, community centers, and community-based human service agencies may have the greatest ability to reach immigrant populations (Han, Valencia, Lee, & De Leon, 2012). Implementing and adapting successful prevention programs is an important priority for Asian Americans (e.g., Holder et al., 2000).

9.0.0. References

Abbey, A., Smith, M. J., & Scott, R. O. (1993). The relationship between reasons for drinking alcohol and alcohol consumption: An interactional approach. *Addictive Behavior, 18*, 659-670.

Abueg, F. R., & Chun, K. M. (1996). Traumatization stress among Asian and Asian Americans. In A. J. Marsella, M. J. Friedman, E. T. Gerrity, & R. M. Scurfield (Eds.), *Ethnocultural aspects of posttraumatic stress disorder: Issues, research, and clinical applications* (pp. 285–299). Washington, DC: American Psychological Association.

Alcoholics Anonymous (1976). *Alcoholics Anonymous: The story of how many thousands of men and women recovered from alcoholism* (3rd ed.). New York: A.A. World Services.

Alcoholics Anonymous (1981). *Twelve Steps and Twelve Traditions*. New York: A.A. World Services.

Aldwin, C., & Greenberger, E. (1987). Cultural differences in the predictors of depression. *American Journal of Community Psychology, 37*, 789 – 813.

Alegria, M., Takeuchi, D., Canino, G., Duan, N., Shrout, P., Meng, X. L., Vega, W., ... Gong, F. (2004). Considering context, place and culture: the National Latino and Asian American Study. *International Journal of Methods in Psychiatric Research, 13*, 4, 208-20.

American Psychiatric Association. (2000). *Diagnostic and statistical manual of mental disorders* (4th ed., text rev.). Washington, DC: Author.

Amodeo, M. Robb, N., Peou, S. & Tran, H. (1997). Alcohol and Other Drug Problems Among Southeast Asians. *Alcoholism Treatment Quarterly, 15*(3), 63-77.

Aneshensel, C. S., & Huba, G. J. (1983). Depression, alcohol use, and smoking over one year: a four-wave longitudinal causal model. *Journal of Abnormal Psychology. 92*(2), 134-50.

Asher, H. B. (1972). *Causal Modeling*. Sage Publications, Newbury Park, CA.

Baer, J. S. (1993). Etiology and secondary prevention of alcohol problems with young adults. In J. S. Baer, G. A. Marlatt, & R. J. McMahon (Eds). *Addictive behaviors across the lifespan* (pp. 111-137). Newbury Park, CA: Sage Publications.

Babor, T.F., Stephens, R.S., & Marlatt, G.A. (1987). Verbal report methods in clinical research and alcoholism: Report bias and its minimization. *Journal of Studies on Alcohol, 48,* 410-424.

Bailey, F. J., & Dua, J. (1999). Individualism-Collectivism, Coping Styles, and Stress in International and Anglo-Australian Students: A Comparative Study. *Australian Psychologist, 34*(3), 177.

Baker, T. B., Piper, M. E., McCarthy, D. E., Majeskie, M. R., & Fiore, M. C. (2004). Addiction motivation reformulated: An affective processing model of negative reinforcement. *Psychological Review, 111,* 33–51.

Barrett, J. E. (1979). The relationship of life events to the onset of neurotic disorders. In Barrett, J. E., Rose, R. M., & Klerman, G. L (eds), *Stress and Mental Disorder* (pp. 87-109). New York, NY: Raven Press.

Barnes, J. S., & Bennett, C. E. (2002). The Asian population: 2000, 1-10. Washington, D.C.: U.S. Census Bureau.

Beadnell, B., Baker, S. A., Gillmore, M. R., Morrison, D. M., Huang, B., & Stielstra, S. (2008). The Theory of Reasoned Action and the Role of External Factors on Heterosexual Men's Monogamy and Condom Use. *Journal of Applied Social Psychology, 38*(1), 97-134.

Bebbington, P. E., Sturt, E., Tennant C., & Hurry J. (1984). Misfortune and resilience: a community study of women. *Psychological Medicine, 14*, 347–363.

Beck, A. T., & Steer, R. A. (1990). *Manual for the Beck Anxiety Inventory*. Psychological Corporation. San Antonio, TX.

Beck, A. T., Steer, R. A., & Brown, G. K. (1996). *Manual for the Beck Depression Inventory* (2nd ed.). San Antonio, TX: The Psychological Corporation.

Beckwith, J. B. (1987). Psychological functions of eating, drinking, and smoking in adult women. *Social Behavior and Personality, 15,* 185-206.

Benish, S. G., Quintana, S., & Wampold, B. E. (2011). Culturally adapted psychotherapy and the legitimacy of myth: a direct-comparison meta-analysis. *Journal of Counseling Psychology, 58*(3), 279-289.

Bentler, P. M. (1990). Comparative fit indexes in structural models. *Psychological Bulletin, 207,* 238–246.

Berger, B. D., & Adesso, V. J. (1991). Gender differences in using alcohol to cope with depression. *Addictive Behaviors, 16*(5), 315-27.

Berry, J. W., Kim, U., Minde, T., & Mok, D. (1987). Comparative studies of acculturative stress. *International Migration Review, 21*, 491–511.

Birnbaum I., Taylor, T. H., & Parker, E. S. (1983). Alcohol and sober mood state in female social drinkers. *Alcoholism, Clinical and Experimental Research, 7*(4), 362-8.

Blanchard, K. A., Morgenstern, J., Morgan, T. J., Labouvie, E. W., & Bux, D. A. (2003). Assessing consequences of substance use: psychometric properties of the inventory of drug use consequences. *Psychology of Addictive Behaviors, 17*(4), 328-331.

Bolen J. C., Rhodes L, Powell-Griner E. E., Bland, S. D., & Holtzman, D. (2000). State-specific prevalence of selected health behaviors, by race and ethnicity--Behavioral Risk Factor

Surveillance System, 1997. *Morbidity and Mortality Weekly Report Surveillance Summaries, 49*(2), 1-60.

Bowen, S. Chawla, N., Collins, S. E., Witkiewitz, K., Hsu, S. H., Grow, J., … Marlatt, G. A. (2009). Mindfulness-Based Relapse Prevention for substance use disorders: A pilot efficacy trial. *Substance Abuse, 30*(4), 295-305.

Bowen, S., Witkiewitz, K., Clifasefi, S. L., Grow, J., Chawla, N., Hsu, S. H., … Larimer, M. E. (in press). Mindfulness-Based Relapse Prevention versus Cognitive Behavior Therapy: 12-Month outcomes from a Clinical Trial of Mindfulness-Based Relapse Prevention. *The Journal of American Medical Association*.

Boyd, M. R., Bland, A., Herman, J., Mestler, L., Murr, L., & Potts, L. (2002). Stress and coping in rural women with alcohol and other drug disorders. *Archives of Psychiatric Nursing, 16*(6), 254-62.

Bray, R. M., Fairbank, J. A., & Marsden, M. E. (1999). Stress and substance use among military women and men. *The American Journal of Drug and Alcohol Abuse, 25*(2), *239-56.*

Brennan, P. L., Schutte, K. K., & Moos, R. H. (1999). Reciprocal relations between stressors and drinking behavior: a three-wave panel study of late middle-aged and older women and men. *Addiction, 94*, 737–749.

Brown, G. W., & Harris, T. (1978). *Social Origins of Depression: A Study of Psychiatric Disorder in Women.* New York, NY: Free Press.

Caetano, R. (1993). Priorities for alcohol treatment research among U.S. Hispanics. *Journal of Psychoactive Drugs, 25*, 53–60.

Caetano, R., Clark, C. L., & Tam, T. (1998). Alcohol consumption among racial/ethnic minorities: theory and research. *Alcohol Health & Research World, 22*, 233-242.

Cappell, H., & Greeley, J. (1987). Alcohol and tension reduction: An update on research and theory. In H. T. Blane & K. E. Leonard (Eds.), *Psychological theories of drinking and alcoholism* (pp. 15-54). New York, NY: Guilford Press.

Carlin, J. E. (1990). Refugee and immigrant populations at special risks: Women, children, and the elderly. In W. H. Holtzman & T. H, Bornemann (Eds.), *Mental health of immigrants and refugees* (pp. 224–244). Austin, TX: Hogg Foundation for Mental Health.

Carpenter, K. M., & Hasin, D. S. (1999). Drinking to cope with negative affect and DSM-IV alcohol use disorders: A test of three alternative explanations. *Journal of Studies on Alcohol, 60,* 694-704.

Castro, F. (2007). Ethnicity and racial minority group. In K. Witkitiwtz & G. A. Marlatt (Eds), *Therapist's Guide to Evidence-Based Relapse Prevention (Practical Resources for the Mental Health Professional)* (pp. 215-235). New York, NY: Academic Press.

Cahalan, D., Cisin, I. H., & Crossley, H. M. (1969). American drinking practices: A national study of drinking behavior and attitudes. New Brunswick, NJ: Rutgers Center of Alcohol Studies Monograph, No. 6.

Cervantes, R. C., & Cordova, D. (2011). Life experiences of Hispanic adolescents: developmental and language considerations in acculturation stress. *Journal of Community Psychology, 39*(3), 336-352.

Cervantes, R. C., Padilla, A. M., & Salgado, S. N. (1991). The Hispanic Stress Inventory: A culturally relevant approach to psychosocial assessment. *Psychological Assessment, 3*(3), 438-447.

Chae, D. H., Takeuchi, D. T., Barbeau, E. M., Bennett, G. G., Lindsey, J. C., Stoddard, A. M., & Krieger, N. (2008). Alcohol disorders among Asian Americans: associations with unfair

treatment, racial/ethnic discrimination, and ethnic identification (the national Latino and Asian Americans study, 2002-2003). *Journal of Epidemiology and Community Health, 62*(11), 973-9.

Chang, W. (1985). A cross-cultural study of depressive symptomatology. *Culture, Medicine, and Psychiatry, 9*, 295-317.

Chermack, S.T., Singer, K., & Beresford, T.P. (1998). Screening for alcoholism among medical inpatients: How important is corroboration of patient self-report? *Alcoholism: Clinical and Experimental Research, 22*, 1393-1398.

Cheung, F. M. (1995). Facts and myths about somatization among the Chinese. In T.-Y. Lin, W. S. Tseng, & E. K. Yeh (Eds.), *Chinese societies and mental health* (pp. 156–180). Hong Kong: Oxford University Press.

Cheung, F. M., & Lau, B. W. (1982). Situational variations of help-seeking behavior among Chinese patients. *Comprehensive Psychiatry, 23*(3), 252-262.

Cheung, Y. W. (1990-91). Ethnicity and alcohol/drug use revisited: A framework for future research. *International Journal of Addictions, 25*, 581-605.

Chi, I., Lubben, J. E., & Kitano, H. H. L. (1989). Differences in drinking behavior among three Asian American groups. *Journal of Studies on Alcohol, 50*, 15-23.

Cho, Y. I., & Faulkner, W. R. (1993). Conceptions of alcoholism among Koreans and Americans. *International Journal of the Addictions, 28*(8), 681-694.

Chow, J. (2002). Asian American and Pacific Islander mental health and substance abuse agencies. *Administration and Policy in Mental Health, 30*, 79–86.

Chua, P. D. C. F. (2000). Negotiating new Asian-American masculinities: attitudes and gender expectations. *Journal of Men's Studies, 7*(3), 391-413.

Chung, R. C., & Lin, K. (1994). Help-seeking behavior among Southeast Asian refugees. *Journal of Community Psychology, 22*, 109–120.

Cohen, J., Cohen, P., West, S. G., & Aiken, L. S. (2003). *Applied multiple regression/correlation analysis for the behavioral sciences* (3rd ed.). Mahwah, NJ: Erlbaum.

Cole, G., Tucker, L., & Griedman, G. M. (1990) Relationships among measures of alcohol drinking, behavior, life-events and perceived stress. *Psychological Reports 67*, 587–591.

Collins, R. L., Parks, G. A., & Marlatt, G. A. (1985). Social determinants of alcohol consumption: The effects of social interaction and model status on the self-administration of alcohol. *Journal of Consulting and Clinical Psychology*, *53*, 189- 200.

Connors, G. J., O'Farrell, T. J., Cutter, H. S., & Thompson, D. L. (1987). Dose-related effects of alcohol among male alcoholics, problem drinkers and nonproblem drinkers. *Journal of Studies on Alcohol*, *48*(5), 461-6.

Constantine, M. G., Chen, E. C., & Ceesay, P. (1997). Intake concerns of racial and ethnic minority students at a university counseling center: Implications for developmental programming and outreach. *Journal of Multicultural Counseling and Development, 25*, 210–218.

Constantine, M. G., Okazaki, S., & Utsey, S. O. (2004). Self-concealment, social self-efficacy, acculturative stress, and depression in African, Asian, and Latin American international college students. *The American Journal of Orthopsychiatry*, *74*(3), 230-41.

Cooper, M. L. (1994). Motivations for alcohol use among adolescents: Development and validation of a four-factor model. *Psychological Assessment, 6*, 117-128.

Cooper, M. L., Frone, M. R., Russell, M., & Mudar, P. (1995). Drinking to regulate positive and negative emotions: a motivational model of alcohol use. *Journal of Personality and Social Psychology, 69*, 990-1005.

Cooper, M. L., Russell, M., & George, W. H. (1988). Coping, expectancies, and alcohol abuse: A test of social learning formulations. *Journal of Abnormal Psychology, 97*, 218-230.

Cooper, M. L., Russell, M., Skinner, J. B., & Windle, M. (1992). Development and validation of a three-dimensional measure of drinking motives. *Psychological Assessment, 4*, 123-132.

Costello, C. G. (1982). Social factors associated with depression: a retrospective community study. *Psychological Medicine, 12*, 329–339.

Darke, S. (1998). Self-report among injecting drug users: A review. *Drug and Alcohol Dependence, 51*, 253-263.

Darlington, R. B. (1968). Multiple regression in psychological research and practice. *Psychological Bulletin, 69*, 161–182.

D'Avanzo, C. E. (1997). Southeast Asians: Asian-Pacific Americans at risk for substance misuse. *Substance Use & Misuse, 32*(7-8), 7-8.

D'Avanzo, C. E., & Barab, S. A. (2000). Drinking during pregnancy: practices of Cambodian refugees in France and the United States. *Health Care for Women International, 21*(4), 319-34

D'Avanzo, C. E., Frye. B., & Froman, R. (1994). Culture, stress, and substance use in Cambodian refugee women. *Journal of Studies on Alcohol, 55*(4), 420-426.

Dawson, D. A., Grant, B. F., & Ruan, W. J. (2005). The association between stress and drinking: Modifying effects of gender and vulnerability. *Alcohol and Alcoholism, 40*(5), 453-460.

DeHaas, R. A., Calamari, J. E., Bair, J. P., & Martin, E. D. (2001). Anxiety sensitivity and drug or alcohol use in individuals with anxiety and substance use disorders. *Addictive Behaviors, 26,* 787-801.

Del, B. F. K., & Darkes, J. (2003). The validity of self-reports of alcohol consumption: state of the science and challenges for research. *Addiction, 98,* 1-12.

DeLongis, A., Coyne, J. C., Dakof, G., Folkman, S., & Lazarous, R. S. (1982). Relationship of daily hassle, uplifts, and major life events to health status. *Health Psychology, 1,* 119-136.

Department of Health and Human Services (2000). Healthy people 2010. Rockville, MD: U.S. Department of Health and Human Services.

Department of Health and Human Services (2001). Mental Health: Culture, Race, and Ethnicity—A Supplement to Mental Health: A Report of the Surgeon General. Rockville, MD: U.S. Department of Health and Human Services, Substance Abuse and Mental Health Services Administration, Center for Mental Health Services.

Derogatis, L. R., & Melisaratos, N. (1983). The brief symptom inventory: An introductory report. *Psychological Medicine, 13,* 595-605.

Desapriya, E., Shimizu, S., Pike, I., Subzwari, S., & Scime, G. (2007). Impact of lowering the legal blood alcohol concentration limit to 0.03 on male, female and teenage drivers involved alcohol-related crashes in Japan. *International Journal of Injury Control and Safety Promotion, 14*(3), 181-187.

Dohrenwend, B. S., & Dohrenwend, B. (1981). (Eds.). *Stressful Life Events and Their Contexts.* New York, NY: Prodist.

Dressler, W. W. (1985). The social and cultural context of coping: action, gender and symptoms in a southern black community. *Social Science & Medicine, 21*(5), 499-506.

Droomers, M., Schrijvers, C. T., Stronks, K., van, M. D., & Mackenbach, J. P. (1999). Educational differences in excessive alcohol consumption: the role of psychosocial and material stressors. *Preventive Medicine, 29*, 1–10.

Dyal, J. A., & Dyal, R. Y. (1981). Acculturation, stress and coping: Some implications for research and education. *International Journal of Relations, 5*, 301-328.

Edberg, M., Cleary, S., & Vyas, A. (2011). A trajectory model for understanding and assessing health disparities in immigrant/refugee communities. *Journal of Immigrant and Minority Health, 13*(3), 576-584.

Ennis, N. E., Hobfoll, S. E., & Schröder, K. E. (2000). Money doesn't talk, it swears: how economic stress and resistance resources impact inner-city women's depressive mood. *American Journal of Community Psychology, 28*(2), 149-73.

Fan, X., Thompson, B., & Wang, L. (1999). The effects of sample size, estimation methods, and model specification on SEM fit indices. *Structural Equation Modeling, 6*, 56–83.

Faravelli, C., & Pallanti, S. (1989). Recent life events and panic disorder. *American Journal of Psychiatry, 146*, 622-626.

Field, A. P. (2005). *Discovering statistics using SPSS: (and sex, drugs and rock 'n' roll).* London, England: Sage Publications.

Finlay-Jones, R., & Brown, G. W. (1981) Types of stressful life events and the onset of anxiety and depressive disorders. *Psychological Medicine, 11*, 803-815.

Flammer, A., Ito, T., Luthi, R., Plaschy, N., Reber, R., Zurbriggen, L., et al. (1995). Coping with control-failure in Japanese and Swiss adolescents. *Swiss Journal of Psychology, 54*, 277-288.

Folkman, S., & Lazarus, R. S. (1980). An analysis of coping in a middle-aged community sample. *Journal of Health and Social Behavior, 21*, 219–39

Folkman, S., & Moskowitz, J. T. (2004). COPING: Pitfalls and Promise. *Annual Review of Psychology, 55*, 745-774.

Frank, J. D., & Frank, J. B. (1993). *Persuasion and healing.* Baltimore, MD: Johns Hopkins University Press.

Fraser, M. W. & Pecora, P. J. (1985). Psychological adaptation among Indochinese refugees. *Journal of Applied Social Sciences, 10*(1), 20-39.

Frone, M. R., Cooper, M. L., & Russell, M. (1994). Stressful Life Events, Gender, and Substance Use: An Application of Tobit Regression. *Psychology of Addictive Behaviors, 8*(2), 59.

Frone, M. R., & Windle, M. (1997). Job dissatisfaction and substance use among employed high school students: the moderating influence of active and avoidant coping styles. *Substance Use & Misuse, 32*(5), 571-85.

Fydrich, T., Dowdall, D., & Chambless, D. L. (1992). Reliability and validity of the Beck Anxiety Inventory. *Journal of Anxiety Disorders, 6*, 55–61.

Galaif, E., Sussman, S., Chou, C., & Wills, T. (2003). Longitudinal Relations Among Depression, Stress, and Coping in High Risk Youth. *Journal of Youth and Adolescence, 32*(4), 243-258.

Galvan F. H., & Caetano, R. (2003). Alcohol use and related problems among ethnic minorities in the United States. *Alcohol Research & Health, 27*(1), 87-94.

Gaviria, M., Pathak, D. S., Mitchell, T., Flaherty, J. A., Winthrop, R. M., Martínez, H., García-Pacheco, G., Richman, J., & Birz, S. (1985). Developing instruments for cross-cultural research. Paper presented at the American Psychiatric Convention, Dallas Texas.

Gee, G. C., Ryan, A., Laflamme, D. J., & Holt, J. (2006). Self-reported discrimination and mental health status among African descendants, Mexican Americans, and other Latinos in the New Hampshire REACH 2010 Initiative: the added dimension of immigration. *American Journal of Public Health, 96*(10), 1821-8.

Geisner, I. M., Bowen, S., Lostutter, T. W., Cronce, J. M., Granato, H., & Larimer, M. E. (in press). Gambling-related problems as a mediator between treatment and mental health with at-risk college student gamblers. *Journal of Gambling Studies*.

Gil, A. G., Vega, W. A., & Dimas, J. M. (1994). Acculturative stress and personal adjustment among Hispanic adolescent boys. *Journal of Community Psychology, 22*, 43–54.

Glass, T. A., Prigerson, H., Kasl, S. V., & Mendes, L. C. F. (1995). The effects of negative life events on alcohol consumption among older men and women. *Journal of Gerontology. Series B, Psychological Sciences and Social Sciences, 50*, S205–S216.

Goldstein, A. L., Flett, G. L., & Wekerle, C. (2010). Child maltreatment, alcohol use and drinking consequences among male and female college students: An examination of drinking motives as mediators. *Addictive Behaviors, 35*, 636–639.

Goldstein, A. L., Vilhena-Churchill, N., Stewart, S. H., & Wekerle, C. (2012). Coping motives as moderators of the relationship between emotional distress and alcohol problems in a sample of adolescents involved with child welfare. *Advances in Mental Health, 11*(1), 67-75.

Gong-Guy, E. (1987). The California Southeast Asian mental health needs assessment. Sacramento, CA: California State Department of Mental Health (Contract No. 85-76282A-2).

Graham, K., & Schmidt, G. (1999) Alcohol use and psychosocial well-being among older adults. *Journal of Studies on Alcohol, 60,* 345–351.

Grant B. F., Dawson D. A., Stinson F. S., Chou S.P., Dufour M.C., & Pickering, R. P. (2004). The 12-month prevalence and trends in DSM-IV alcohol abuse and dependence: United States, 1991-1992 and 2001-2002. *Drug and Alcohol Dependence, 74,* 223–234.

Grant, V. V., Stewart, S. H., & Mohr, C. D. (2009). Coping-anxiety and coping-depression motives predict different daily mood-drinking relationships. *Psychology of Addictive Behaviors, 23,* 226–237.

Grayson, C. E., & Nolen-Hoeksema, S. (2005). Motives to drink as mediators between childhood sexual assault and alcohol problems in adult women. *Journal of Traumatic Stress, 18*(2), 137-145.

Greeley, J., & Oei, T. (1999). Alcohol and tension reduction. In K. E. Leonard & H. T. Blane (Eds.). *Psychological Theories of Drinking and Alcoholism* (2nd ed.) (pp. 14-53). New York, NY: Guilford Press.

Greenberger, E., & Chen, C. (1996). Perceived family relationships and depressed mood in early and late adolescence: A comparison of European and Asian Americans. *Developmental Psychology, 32,* 707–716.

Griner, D., & Smith, T. B. (2006). Culturally adapted mental health intervention: A meta-analytic review. *Psychotherapy: Theory, Research, Practice, Training, 43,* 531–548.

Grunberg, L., Moore, S., Anderson-Connolly, R., & Greenberg, E. (1999). Work stress and self-reported alcohol use: The moderating role of escapist reasons for drinking. *Journal of Occupational Health Psychology, 4*, 29-36.

Gureje, O., Simon, G. E., Ustsun, T. B., Goldberg D. P. (1997) Somatization in cross-cultural perspective: a World Health Organization study in primary care. *American Journal of Psychiatry, 154*(7), 989–995

Gutmann, M. C. (1999). Ethnicity, alcohol, and acculturation. *Social Science and Medicine, 48*, 173-184.

Haack, M. R., Harford, T. C., & Parker, D. A. (1988). Alcohol use and depression symptoms among female nursing students. *Alcoholism, Clinical and Experimental Research, 12*(3), 365-7.

Haidet, P., O'Malley, K. J., Sharf, B. F., Gladney, A. P., Greisinger, A. J., & Richard, L. S., Jr. (2008). Characterizing explanatory models of illness in healthcare: Development and validation of the CONNECT instrument. *Patient Education and Counseling, 73*, 232–239

Han, H. R., Kim, M., Lee, H. B., Pistulka, G., & Kim, K. B. (2007). Correlates of depression in the Korean American elderly: focusing on personal resources of social support. *Journal of Cross-Cultural Gerontology*, *22*(1), 115-27.

Han, M., Valencia, M, Lee, Y. S., & De Leon, J. (2012). Development and Implementation of the Culturally Competent Program with Cambodians: The Pilot Psycho-Social-Cultural Treatment Group Program. *Journal of Ethnic and Cultural Diversity in Social Work, 21*(3), 212-230.

Harachi, T. W., Catalano, R. F., Kim, S., & Choi, Y. (2001). Etiology and prevention of substance use among Asian American youth. *Prevention Science: the Official Journal of the Society for Prevention Research, 2*(1), 57-65.

Hartka, E., Johnstone, B., Leino, E. V., Motoyoshi, M., Temple, M. T., & Fillmore, K. M. (1991). A meta-analysis of depressive symptomatology and alcohol consumption over time. *British Journal of Addiction, 86*(10), 1283-98.

Heppner, P. P. (2008). Expanding the Conceptualization and Measurement of Applied Problem Solving and Coping: From Stages to Dimensions to the Almost Forgotten Cultural Context. *American Psychologist, 63*(8), 805-816.

Heppner, P., Heppner, M., Lee, D., Wang, Y., & Park, H. (2006). Development and validation of a Collective Coping Style Inventory. *Journal of Counseling Psychology, 53*(1), 107-125.

Hiott, A., Grzywacz, J. G., Arcury, T. A., & Quandt, S. A. (2006). Gender Differences in Anxiety and Depression Among Immigrant Latinos. *Families, Systems & Health, 24*, 137-146.

Holahan C. J., Moos, R. H., Holahan, C. K., Cronkite, R. C., & Randall, P. K. (2001). Drinking to cope, emotional distress and alcohol use and abuse: a ten-year model. *Journal of Studies on Alcohol, 62*(2), 190-8.

Holder, H. D., Gruenewald, P. J., Ponicki, W. R., Treno, A. J., Grube, J. W., Saltz, R. F., ... Roeper, P. (2000). Effect of community-based interventions on high-risk drinking and alcohol-related injuries. *Journal of the American Medical Association, 284*(18), 2341-2347.

Hong, G. K., Lee, B. S., & Lorenzo, M. K. (1995). Somatization in Chinese American Clients: Implications for Psychotherapeutic Services. *Journal of Contemporary Psychotherapy,*

25(2), 105-110.

Hovey, J. D., & Magaña, C. (2000). Acculturative stress, anxiety, depression among Mexican immigrant frameworks in the Midwest United States. *Journal of Immigrant Health, 2*(3), 119-131.

Hsu, E., Davies, C. A., & Hansen, D. J. (2004). Understanding mental health needs of Southeast Asian refugees: Historical, cultural, and contextual challenges. *Clinical Psychology Review*, *24*, 193-213.

Hsu, L. K. G., & Folstein, M. F. (1997). Somatoform disorders in Caucasian and Chinese Americans. *Journal of Nervous and Mental Disease, 185*, 382-387.

Hsu, S. H., Tran, H., Sun, M., & Larimer, M. E. (2013). Words of treatment-seeking Asian Americans: Perception on drinking, DUI, and effectiveness of treatment. Annual Meeting of Research Society on Alcoholism, Orlando, FL.

Hsu, W. Y., Chen, M. C., Wang, T. H., & Sun, S. H. (2008). Coping strategies in Chinese social context. *Asian Journal of Social Psychology, 11*(2), 150-162.

Ho, C. K. (1990). An analysis of domestic violence in Asian American communities: Multicultural approach to counseling. *Women and Therapy, 9*, 129– 150.

Hussong, A. M., Hicks, R. E., Levy, S. A., & Curran, P. J. (2001). Specifying the relations between affect and heavy alcohol use among young adults. *Journal of Abnormal Psychology*, *110*(3), 449-61.

Hussong, A. M., Jones, D. J., Stein, G. L., Baucom, D. H., & Boeding, S. (2011). An Internalizing Pathway to Alcohol and Substance Use Disorders. *Psychology of Addictive Behaviors, 25*(3), 390-404.

Hwang, W. C. (2006). The Psychotherapy Adaptation and Modification Framework: Application to Asian Americans. *American Psychologist, 61*(7), 702-715.

Hwang, W. C., Myers, H. F., & Takeuchi, D. T. (2000). Psychosocial predictors of first-onset depression in Chinese Americans. *Social Psychiatry Psychiatric Epidemiology, 35*,133–145.

Hwang W. C., & Ting J. Y. (2008). Disaggregating the effects of acculturation and acculturative stress on the mental health of Asian Americans. *Cultural Diversity & Ethnic Minority Psychology, 14*(2), 147-54.

Hwang, W. C., & Wood, J. J. (2009). Acculturative Family Distancing: Links with Self-Reported Symptomatology among Asian Americans and Latinos. *Child Psychiatry and Human Development, 40*(1), 123-138.

Hwang, W. C., Wood, J. J., & Fujimoto, K. (2010). Acculturative family distancing (AFD) and depression in Chinese American families. *Journal of Consulting and Clinical Psychology, 78*, 5, 655-67.

Hu, L.-T., & Bentler, P. M. (1998). Fit indices in covariance structure modeling: Sensitivity to underparameterized model misspecification. *Psychological Methods, 3*, 424–453.

Hu, L., & Bentler, P. M. (1999). Cutoff criteria for fit indexes in covariance structure analysis: Conventional criteria versus new alternatives. *Structural Equation Modeling, 6*, 1–55.

Jackson, D. L. (2007). The effect of the number of observations per parameter in misspecified confirmatory factor analytic models. *Structural Equation Modeling, 14*, 48–76.

Jackson, D. L., Gillaspy, J. A., & Purc-Stephenson, R. (2009). Reporting practices in confirmatory factor analysis: an overview and some recommendations. *Psychological Methods, 14*, 1, 6-23.

Jennison, K. M. (1992) The impact of stressful life events and social support on drinking among older adults: a general population survey. *International Journal of Aging and Human Development 35*, 99–123.

Jenkins, C. N., McPhee, S. J., Bird, J. A., & Bonilla, N. T. (1990). Cancer risks and prevention practices among Vietnamese refugees. *The Western Journal of Medicine, 153*(1), 34-9.

Johnson, T. P. (1996). Alcohol and drug use among displaced persons: An overview. *Substance Use and Misuse, 31*(13), 1853-1889.

Johnstone, B. M., Garrity, T. F., & Straus, R. (1997). The relationship between alcohol and life stress. In T. W. Miller (Ed.), *Clinical Disorders and Stressful Life Events* (pp. 247–279). Madison, NJ: International Universities Press, Inc.

José, B. S., van, O. H. A., van, . M. H. D., Garretsen, H. F., & Mackenbach, J. P. (2000). Stressors and alcohol consumption. *Alcohol and Alcoholism, 35*, 307–312.

Karasz, A. (2005). Marriage, Depression and Illness: Sociosomatic Models in a South Asian Immigrant Community. *Psychology and Developing Societies, 17*(2), 161-180.

Kendler, K. S., Karkowski, L. M., & Prescott, C. A. (1998): Stressful life events and major depression: risk period, long-term contextual threat, and diagnostic specificity. *Journal of Nervous Mental Disorder, 186*, 661–669.

Kessler, R. C., McGonagle, K. A., Zhao, S. N., Nelson, C. B., Hughes, M., Eshleman, S., … Kendler, K. S. (1994). Lifetime and 12-month prevalence of DSM-III-R psychiatric disorders in the United States: results from the national comorbidity study. *Archival of General Psychiatry, 51*, 8–19.

Khantzian, E. J. (1974). Opiate addiction: A critique of theory and some implications for treatment. *American Journal of Psychotherapy, 28*, 59 –70.

Kim, B. S. K., Atkinson, B. R., & Yang, P. H. (1999). The Asian Values Scale: Development, factor analyses, validation, and reliability. *Journal of Counseling Psychology, 46*, 342–352.

Kim, H. S., Sherman, D. K., & Taylor, S. E. (2008). Culture and social support. *The American Psychologist, 63*(6), 518-26.

Kim, J. H., Lee, S., Chan, K. W., Lau, J., Tsang, A., & Griffiths, S. M. (2010). A population-based study on the prevalence and correlates of drinking and driving in Hong Kong. *Accident Analysis and Prevention, 42*(4), 994-1002.

Kim, J. H., Wong, A. H., Goggins, W. B., Lau, J., & Griffiths, S. M. (2013). Drink driving in Hong Kong: The competing effects of random breath testing and alcohol tax reductions. *Addiction, 108*(7), 1217-1228.

Kim, W. (2006). Diversity Among Southeast Asian Ethnic Groups. *Journal of Ethnic and Cultural Diversity in Social Work, 15*, 83-100.

King, A. C., Bernardy, N. C., & Hauner, K. (2003) Stressful events, personality, and mood disturbance: gender differences in alcoholics and problem drinkers. *Addictive Behaviors, 28*, 171–187.

Kinzie, J. D. (1989). Therapeutic approaches to traumatized Cambodian refugees. *Journal of Traumatic Stress, 2*, 75–91.

Kinzie, J. D., Frederickson, R., Rath, B., Fleck, J., & Karls, W. (1981). Post-traumatic stress disorder among survivors of Cambodian concentration camps. *American Journal of Psychiatry, 141*, 645–650.

Kivlahan, D. R., Marlatt, G. A., Fromme, K., Coppel, D. B., & Williams, E. (1990). Secondary prevention of alcohol-related problems in young adults at risk. In C. D. Craig & S. M.

Weiss (Eds.), *Health enhancement, disease prevention, and early intervention* (pp. 287-300). New York, NY: Springer.

Kleinman, A. (1977). Depression, somatization and the "new cross-cultural psychiatry." *Social Science and Medicine, 11*, 3–10.

Kleinman, A. (1980). *Patients and healers in the context of culture: An exploration of the borderland between anthropology, medicine, and psychiatry.* Berkeley, CA: University of California Press.

Kleinman, A., Eisenberg, L., & Good, B. (2006). Culture, illness, and care: Clinical lessons from anthropologic and cross-cultural research. *Focus, 4*, 140–149.

Kline, R. B. (1998). *Principles and practice of structural equation modeling*. New York, NY: Guilford.

Kline, R. B. (1999). *The handbook of psychological testing* (2nd ed.). London: Routledge.

Kline, R. B. (2005). *Principles and practice of structural equation modeling* (2nd ed.). New York, NY: Guilford.

Kline, R. B. (2011). *Principles and practice of structural equation modeling* (3nd ed.). New York, NY: Guilford.

Koopman, C., Wanat, S. F., Whitsell, S., Westrup, D., & Matano, R. A. (2003). Relationships of Alcohol Use, Stress, Avoidance Coping, and Other Factors With Mental Health in a Highly Educated Workforce. *American Journal of Health Promotion, 17*, 259-268.

Krasucki, C., Howard, R., & Mann, A. (1998). The relationship between anxiety disorders and age. *International Journal of Geriatric Psychiatry, 13*, 2, 79-99.

Krause, N. (1991) Stress, religiosity, and abstinence from alcohol. *Psychology and Aging, 6*, 134–144.

Kunz, E. F. (1973). The refugee in flight: Kinetic models and forms of adjustment. *International Migration Review, 7,* 126–146.

Kuo, W. (1976). Theories of migration and mental health: An empirical testing on Chinese-Americans. *Social Science Medicine, 10,* 297-306.

Kushner, M. G., Thuras, P., Abrams, K., Brekke, M., & Stritar, L. (2001). Anxiety mediates the association between anxiety sensitivity and coping-related drinking motives in alcoholism treatment patients. *Addictive Behaviors, 26,* 869-885.

Lam, A. G., & Zane, N. W. S. (2004). Ethnic Differences in Coping with Interpersonal Stressors: A Test of Self-Construals as Cultural Mediators. *Journal of Cross-Cultural Psychology, 35*(4), 446-459.

Lamon, B. C., & Alonzo, A. (1997). Stress Among Males Recovering From Substance Abuse. *Addictive Behaviors, 22*(2), 195.

Lau, A. S., Jernewall, N. M., Zane, N., & Myers, H. F. (2002). Correlates of Suicidal Behavior among Asian American Outpatient Youth. *Cultural Diversity and Ethnic Minority Psychology, 8*(3), 199-213.

Lazarus, R. S., & Folkman, S. (1984). *Stress, appraisal, and coping.* New York, NY: Springer.

Lee, J. P., Battle, R., Antin, T. M. J., & Lipton, R. (2008). Alcohol use among two generations of Southwest Asians in the U.S. *Journal of Ethnicity in Substance Abuse, 7*(4), 357-375.

Lee, R. M., Choe, J., Kim, G., & Ngo, V. (2000). Construction of the Asian American Family Conflicts Scale. *Journal of Counseling Psychology, 47*, 211–222.

Lee, R. M., & Liu, H.-T. T. (2001). Coping with intergenerational family conflict: Comparison of Asian American, Hispanic, and European American college

students. *Journal of Counseling Psychology, 48*, 410 – 419.

Lee, R. M., Su, J., & Yoshida, E. (2005). Coping With Intergenerational Family Conflict Among Asian American College Students. *Journal of Counseling Psychology, 52*(3), 389-420.

Lee, S. M. (1998). Asian Americans: Diverse and growing. *Population Bulletin, 53*(2), Washington, D.C.: Population Reference Bureau.

Leong, F. T., & Lau, A. S. (2001). Barriers to providing effective mental health services to Asian Americans. *Mental Health Services Research, 3*(4), 201-214.

Lewinsohn, P. M., & Amenson, C. S. (1978). Some relations between pleasant and unpleasant mood-related events and depression. *Journal of Abnormal Psychology, 87*, 644-654.

Lin, K. M. (1996). Cultural influences on the diagnosis of psychotic and organic disorders. In J. E. Mezzich, A. Kleinman, H., Fabrega, & D. L. Parron (Eds.), *Culture and Psychiatric Diagnosis: A DSM-IV Perspective* (pp. 307–312). Washington, DC: American Psychiatric Press.

Lin, K. M., Masuda, M., & Tazuma, L. (1982). Adaptational problems of Vietnamese refugees: III. Case studies in clinic and field: Adaptive and maladaptive. *Psychiatry Journal of the University of Ottawa, 7*, 173– 183.

Lin-Fu, J. S. (1988). Population characteristics and health care needs of Asian Pacific Americans. *Public Health Reports, 103*(1), 18-27.

Linsky, A. S., Straus, M. A., & Colby, J. P. Jr. (1985). Stressful events, stressful conditions and alcohol problems in the United States: a partial test of Bales's theory. *Journal of Studies on Alcohol, 46*, 72–80.

Lu, A., & Wong, Y. J. (2013). Stressful Experiences of Masculinity among U.S.-born and Immigrant Asian American Men. *Gender & Society, 27*(3), 345-371.

Lueck, K., & Wilson, M. (2010). Acculturative stress in Asian immigrants: The impact of social and linguistic factors. *International Journal of Intercultural Relations, 48*(1), 47-57.

MacKinnon, D. P., & Lapin, A. (1998). Effects of alcohol warnings and advertisements: A test of the Boomerang Hypothesis. *Psychology & Marketing, 15*(7), 707-726.

Makimoto, K. (1998). Drinking patterns and drinking problems among Asian-Americans and Pacific Islanders. *Alcohol Health and Research World, 22*(4), 270-275.

Marsella, A. J., & Dash-Scheuer, A. (1988). Coping, culture, and healthy human development: A research and conceptual overview. In P. R. Dasen, J. W. Berry, & N. Sartorius (Eds.), *Health and cross-cultural psychology: Toward applications* (pp. 162-178). Newbury Park, CA: Sage.

Marlatt, G. A., Baer, J. S., & Larimer, M. (1995). Preventing alcohol abuse in college students: A harm-reduction approach. In G. Boyd, J. Howard, & R. Zucker (Eds.), *Alcohol problems among adolescents: Current directions in prevention research* (pp. 147-172). Hillsdale, NJ, England: Lawrence Erlbaum Associates.

Marlatt, G. A., & Gordon, J. R. (Eds.), Relapse prevention: Maintenance strategies in the treatment of addictive behaviors. New York, NY: Guilford Press.

Markus, H. R., & Kitayama, S. (1991). Culture and the self: Implications for cognition, emotion, and motivation. *Psychological Review, 98*, 224-253.

Marsh, H. W., Balla, J. R., & Hau, K.-T. (1996). An evaluation of incremental fit indices: A clarification of mathematical and empirical properties. In G. A. Marcoulides & R. E. Schumacker (Eds.), *Advanced structural equation modeling: Issues and techniques*. Mahwah, NJ: Erlbaum.

Marsh, H. W., Hau, K.-T., Balla, J. R., & Grayson, D. (1998). Is more ever too much? The number of indicators per factor in confirmatory factor analysis. *Multivariate Behavioral Research, 33,* 181–220.

Martin, J. K., Blum, T. C., & Roman, P. M. (1992). Drinking to cope and self-medication: Characteristics of jobs in relation to workers' drinking behavior. *Journal of Organizational Behavior, 13,* 55-71.

Masson, C. L., Shopshire, M. S., Sen, S., Hoffman, K. A., Hengl, N. S., Bartolome, J., ... Iguchi, M. Y. (2013). Possible barriers to enrollment in substance abuse treatment among a diverse sample of Asian Americans and Pacific Islanders: Opinions of treatment clients. *Journal of Substance Abuse Treatment, 44*(3), 309-315.

MacCallum, R. C. (1986). Specification searches in covariance structure modeling. *Psychological Bulletin, 100,* 107–120.

MacCallum, R. C. (1995). Model specification: Procedures, strategies, and related issues. In R. H. Hoyle (Ed.), *Structural equation modeling: Concepts, issues, and applications*. Thousand Oaks, CA: Sage.

McCarthy, D. M., Tomlinson, K. L., Anderson, K. G., Marlatt, G. A., & Brown, S. A. (2005). Relapse in alcohol- and drug-disordered adolescents with comorbid psychopathology: changes in psychiatric symptoms. *Psychology of Addictive Behaviors, 19*(1), 28-34.

McCarty, C. A., Weisz, J. R., Wanitromanee, K., Eastman, K., Suwanlert, S., Chaiyasit, W., et al. (1999). Culture, coping, and context: Primary and secondary control among Thai and American youth. *Journal of Child Psychology and Psychiatry, 40,* 809-818.

McCreary, D. R., & Sadava, S. W. (2000). Stress, alcohol use and alcohol-related problems: the influence of negative and positive affect in two cohorts of young adults. *Journal of Studies on Alcohol, 61*(3), 466-74.

Miranda, M. R., & Castro, F. (1985). A conceptual model for clinical research on stress and mental health status: From theory to assessment. In W. A. Vega & M. R. Miranda (Eds.), *Stress & Hispanic mental health: Relating research to service delivery* (pp. 174-201). Rockville, MD: National Institute of Mental Health.

Mirdal, G. M. (1984). Stress and distress immigration: Problems and resources of Turkish women in Denmark. *International Migration Review, 18*, 984-1003.

Moos, R. H., Fenn, C. B., Billings, A. G., & Moos, B. S. (1989). Assessing life stressors and social resources: applications to alcoholic patients. *Journal of Substance Abuse, 1*, 135–52.

Morgan, M., Wingard, D., & Felice, M. (1984). Subcultural differences in alcohol use among youth. *Journal of Adolescent Health Care, 5*(3), 191-195.

Morling, B., Kitayama, S., & Miyamoto, Y. (2002). Cultural practices emphasize influence in the US and adjustment in Japan. *Personality and Social Psychology Bulletin, 28*, 311-323.

Mulia, N., Schmidt, L., Bond, J., Jacobs, L. & Korcha, R. (2008). Stress, social support and problem drinking among women in poverty. *Addictions, 103*, 1283-1293.

Mulford, H. A., & Miller, D. E. (1960). Drinking in Iowa. III. A scale of definitions of alcohol related to drinking behavior. *Quarterly Journal of Studies on Alcohol, 21*, 267-278.

Muntingh, A. D., van der Feltz-Cornelis, C. M., van Marwijk, H. W., Spinhoven, P., Penninx, B. W., & van Balkom, A. J. (2011). Is the Beck Anxiety Inventory a good tool to assess the

severity of anxiety? A primary care study in the Netherlands Study of Depression and Anxiety (NESDA). *Bmc Family Practice,* 12:66, 1-6.

Muthén, L. K., & Muthén, B. O. (2004). *Mplus user's guide*. Los Angeles, CA: Authors.

Muthén, L. K., & Muthén, B. O. (2007). Standardized residuals in Mplus. http://www.statmodel.com/download/StandardizedResiduals.pdf

Nagata, T., Setoguchi, S., Hemenway, D., & Perry M. J. (2008). Effectiveness of a law to reduce alcohol-impaired driving in Japan. *Injury Prevention, 14*(1), 19-23.

National Asian Pacific American Families Against Substance Abuse (NAPAFASA; 2001). Asian American Pacific Islander Substance Abuse Needs Assessment Project. Los Angeles, CA: NAPAFASA.

New York (1991). Drug and other substance use among school children in New York State 1990. New York: Division of Substance Abuse Services.

Newcomb, M. D., & Bentler, P. M. (1988). Impact of adolescent drug use and social support on problems of young adults: a longitudinal study. *Journal of Abnormal Psychology, 97*(1), 64-75.

Newcomb, M. D., Chou, C., Bentler, P. M., & Huba, G. J. (1988). Cognitive motivations for drug use among adolescents: Longitudinal tests of gender differences and predictors of change in drug use. *Journal of Counseling Psychology, 35*(4), 426-438.

Nghe, L. T., Mahalik, J. R., & Lowe, S. M. (2003). Influences on Vietnamese men: Examining traditional gender roles, the refugee experience, acculturation, and racism in the United States. *Journal of Multicultural Counseling and Development, 31*(4), 245-261.

Nguyen, T.M., Dunne, M. P., Hill, P. S., Young, R. M., Pham, L. V., & Passmore, J. (2010) Risk of road traffic injury after alcohol consumption in Vietnam. *Journal of Science (Hue University: Medicine & Pharmacy Issue), 27*(61), 437-448.

Novak, A., Burgess, E. S., Clark, M., Zvolensky, M. J., & Brown, R. A. (2003). Anxiety sensitivity, self-reported motives for alcohol and nicotine use, and level of consumption. *Journal of Anxiety Disorders, 17*, 2, 165-180.

O'Doherty, F. & Davies, J. B. (1987). Life events and addiction: a critical review. *British Journal of Addiction, 82*, 127–37.

Oerter, R., Oerter, R., Agostiani, H., Kim, H. O., & Wibowo, S. (1996). The concept of human nature in East Asia: Etic and emic characteristics. *Culture & Psychology, 2*, 9-51.

Oh, Y., Koeske, G. F., & Sales, E. (2002). Acculturation, stress, and depressive symptoms among Korean immigrants in the United States. *The Journal of Social Psychology, 142*, 511–526.

O'Hare, T. & Tran, T. (1998). Substance Abuse among Southeast Asians in the U.S.: Implications for Practice and Research. *Social Work in Health Care, 26*(3), 69-80.

Operario, D., Choi, K., Chu, P. L., McFarland, W., Secura, G. M., Behel, S., … Valleroy, L. (2006). Prevalence and Correlates of Substance Use Among Young Asian Pacific Islander Men Who Have Sex with Men. *Prevention Science, 7*(1), 19-29.

Osilla, K. C., Wong, E. C., & Zane, N. (2012). Harm reduction for Asian American and Pacific Islander Populations. In G. A. Marlatt, M. E. Larimer, & K. Witkiewitz (Eds.), *Harm reduction: Pragmatic strategies for managing high-risk behaviors* (pp. 291-317). New York, NY: Guilford Press.

Otsuki, T. A. (2003). Substance use, self-esteem, and depression among Asian American adolescents. *Journal of Drug Education, 33*(4), 369-90.

Oyunbileg, S., Sumberzul, N., Udval, N., Wang, J.-D., & Janes, C. R. (2009). Prevalence and risk factors of domestic violence among Mongolian women. *Journal of Women's Health, 18*(11), 1873-1880.

Pan, J.-Y., Wong, D. F. K., Chan, C. L. W., & Joubert, L. (2008). Meaning of life as a protective factor of positive affect in acculturation: A resilience framework and a cross-cultural comparison. *International Journal of Intercultural Relations, 32*(6), 505-522.

Park, S.-Y., Shibusawa, T., Yoon, S. M., & Son, H. (2010). Characteristics of Chinese and Korean Americans in outpatient treatment for alcohol use disorders: Examining heterogeneity among Asian American subgroups. *Journal of Ethnicity in Substance Abuse, 9*(2), 128-142.

Parker, B. J. (1998). Exploring life themes and myths in alcohol advertisements through a meaning-based model of advertising experiences. *Journal of Advertising, 27*(1), 97-112.

Parker, D. A., Parker, E. S., Harford, T. C., & Farmer, G. C. (1987). Alcohol use and depression symptoms among employed men and women. *American Journal of Public Health, 77*(6), 704-7.

Parrish, K. M. (1995). Alcohol abuse prevention research in Asian American and Pacific Islander communities. In P .A. Langton, L. G. Epstein, & M A. Orlandi, (Eds). *Challenge of Participatory Research: Preventing Alcohol-Related Problems in Ethnic Communities* (pp. 411-428). Rockville, MD: Center for Substance Abuse Prevention.

Paykel, E. S. (1978). Contribution of life events to causation of psychiatric illness. *Psychological Medicine, 8,* 245–253

Pearlin, L. I., & Radabaugh, C. W. (1976). Economic strains and the coping functions of alcohol. *American Journal of Sociology, 82*, 652-663.

Pearlin, L. I., & Schooler, C. (1978). The structure of coping. *Journal of Health and Social Behavior, 19*, 2-21.

Perreira, K. M., & Sloan, F. A. (2001) Life events and alcohol consumption among mature adults: a longitudinal analysis. *Journal of Studies on Alcohol 62*, 501–508.

Petraitis, P. S., Dunham, A. E., & Niewiarowski, P. H. (1996). Inferring multiple causality: the limitations of path analysis. *Functional Ecology, 10*, 421-431.

Peng, Y. (1995). Primary and secondary control in American and Chinese-American adults: Cross-cultural and lifespan developmental perspectives. Dissertation Abstracts International, 5, 7B. (UMI No. AAM9417712).

Piasecki, T. M., Fiore, M. C., McCarthy, D. E., & Baker, T. B. (2002). Have we lost our way? The need for dynamic formulations of smoking relapse proneness. *Addiction, 97*, 1093-1108.

Pierce, R. S., Frone, M. R., Russell, M., & Cooper, M. L. (1994). Relationship of financial strain and psychosocial resources to alcohol use and abuse: The mediating role of negative affect and drinking motives. *Journal of Health and Social Behavior, 35*, 291-308.

Pierce, R. S., Frone, M. R., Russell, M., & Cooper, M. L, & Mudar, P. A. (2000). Longitudinal model of social contact, social support, depression and alcohol use. *Health Psychology, 19*, 28-38.

Quek, K. M.-T., Knudson-Martin, C., Rue, D., & Alabiso, C. (2010). Relational Harmony: A New Model of Collectivism and Gender Equality among Chinese American Couples. *Journal of Family Issues, 31*, 3, 358-380.

Romelsjö, A., Lazarus, N. B., Kaplan, G. A., & Cohen, R. D. (1991). The relationship between stressful life situations and changes in alcohol consumption in a general population sample. *British Journal of Addiction, 86,* 157–169.

Sakai, J. T., Ho, P. M., Shore, J. H., Risk, N. K., & Price, R. K. (2005). Asians in the United States: Substance dependence and use of substance-dependence treatment. *Journal of Substance Abuse Treatment, 29*(2), 75-84.

Salgado de Snyder, V. N., Cervantes, R. C., & Padilla, A. M. (1990). Gender and Ethnic Differences in Psychosocial Stress and Generalized Distress among Hispanics. *Sex Roles, 22,* 441-53.

Satorra, A., & Bentler, P. (2001). A scaled difference chi-square test statistic for moment structure analysis. *Psychometrika, 66*(4), 507-514.

Sagan, A., & Pawelek, B. (2013). Single-Indicator SEM with Measurement Error: Case of Klein I Model. Abstract published in the Events and Meetings of Italian Statistical Society, Advances in Latent Variables.

Seginer, R., Trommsdorff, G., & Essau, C. (1993). Adolescent control beliefs: Cross-cultural variations of primary and secondary orientations. *International Journal of Behavioral Development, 16,* 243-260.

Shen, B.-J., & Takeuichi, D. T., (2001). A structural model of acculturation and mental health status among Chinese Americans. *American Journal of Community Psychology, 29,* 387-418.

Sher, K. J. (1987). Stress response dampening. In H. T. Blane & K. E. Leonard (Eds.), *Psychological theories of drinking and alcoholism* (pp. 227-271). New York, NY: Guilford Press.

Shin, H. S., Han, H. R., & Kim, M. T. (2007). Predictors of psychological well-being amongst Korean immigrants to the United States: a structured interview survey. *International Journal of Nursing Studies, 44*(3), 415-26.

Shin, K. R. (1994). Psychosocial predictors of depressive symptoms in Korean-American women in New York City. *Women & Health, 21*(1), 73-82.

Skaff, M. M., Finney, J. W., & Moos, R. H. (1999) Gender differences in problem drinking and depression: different vulnerabilities? *American Journal of Community Psychology 27*, 25–54.

Simons, J., & Gaher, R. (2005). The Distress Tolerance Scale: Development and Validation of a Self-Report Measure. *Motivation and Emotion, 29*(2), 83-102.

Sobell, L. C., & Sobell, M. B. (1992) A technique for assessing self-reported alcohol consumption. In R. Z. Litten & J. Allen (eds), *Measuring Alcohol Consumption: Psychosocial and Biological Methods* (pp. 41– 72). Totowa, NJ: Humana Press.

Sobell, L. C., Brown, J. L., Gloria, I., & Sobell, M. B. (1996). The reliability of the Alcohol Timeline Followback when administered by telephone and by computer. *Drug and Alcohol Dependence, 42*, 49–54.

Stein, J. A., & Nyamathi, A. (1998). Gender differences in relationships among stress, coping, and health risk behaviors in impoverished, minority populations. *Personality and Individual Differences, 26*, 1, 141-157.

Stewart, S. H., Karp, J., Pihl, R. O., & Peterson, R. A. (1997). Anxiety Sensitivity and Self-Reported Reasons for Drug Use. *Journal of Substance Abuse, 9*, 223-240.

Stewart, S. H., & Zeitlin, S. B. (1995). Anxiety sensitivity and alcohol use motives. *Journal of Anxiety Disorders, 9*(3), 229-240.

Stewart, S. H., Zvolensky, M. J., & Eifert, G. H. (2001). Negative-reinforcement drinking motives mediate the relation between anxiety sensitivity and increased drinking behavior. *Personality and Individual Differences, 31*(2), 157-171.

Stinson F. S., Yi, H., Grant, B. F., Chou, P., Dawson, D. A., & Pickering, R. P. (1998). Drinking in the United States: Main findings from the 1992 National Longitudinal Epidemiologic Survey (NLAES). Bethesda, MD: NIAAA.

Surtees, P. G., Miller, P. M., Ingham, J. G., Kreitman, N. B., Rennie D., & Sashidharan, S. P. (1986). Life events and the onset of affective disorder: a longitudinal general population study. *Journal of Affect Disorder, 10,* 37-50.

Suarez-Morales, L., & Lopez, B. (2009). The impact of acculturative stress and daily hassles on pre-adolescent psychological adjustment: Examining anxiety symptoms. *Journal of Primary Prevention, 30,* 335-349.

Substance Abuse and Mental Health Services Administration (2005). Substance abuse treatment admissions among Asian and Pacific Islander: 2002. The DASIS Report. Available at: http://www.oas.samhsa.gov/2k5/AsianTX/AsianTX.cfm. Access May 11, 2008.

Sue, S., & Morishima, J. K. (1982). *The mental health of Asian Americans*. San Francisco, CA: Jossey-Bass.

Sue, D. W., & Sue, D. (2008). *Counseling the culturally diverse: Theory and practice.* Hoboken, N.J: John Wiley & Sons.

Sue, S., Sue, D. W., Sue, L., & Takeuchi, D. T. (1995). Psychopathology among Asian Americans: A model minority? *Cultural Diversity and Mental Health, 1*(1), 39-51.

Sue, S., Zane, N., Nagayama Hall, G. C., & Berger, L. K. (2009). The case for cultural competency in psychotherapeutic interventions. *Annual Review of Psychology, 60,* 525-548.

Suriyawongpaisal, P., & Kanchanasut, S. (2003). Road traffic injuries in Thailand: Trends, selected underlying determinants and status of intervention. *Injury Control and Safety Promotion*, *10*(1/2), 95-104.

Swendsen, J. D., Tennen, H., Carney, M. A., Affleck, G., Willard, A., & Hromi, A. (2000). Mood and alcohol consumption: An experience sampling test of the self-medication hypothesis. *Journal of Abnormal Psychology*, *109*, 198 –204.

Tabachnick, B. G., & Fidell, L. (2001). *Using Multivariate Statistics* (4th ed.). Needham Heights, MA.

Tang, Y., Xiang, X., Wang, X., Cubells, J. F., Babor, T. F., & Hao, W. (2013). Alcohol and alcohol-related harm in China: Policy changes needed. *Bulletin of the World Health Organization*, *91*(4), 270-276.

Taylor, S. E., Sherman, D. K., Kim, H. S., Jarcho, J., Takagi, K., & Dunagan, M. S. (2004). Culture and social support: Who seeks it and why? *Journal of Personality and Social Psychology, 87,* 354–362.

Taylor, S. E., Welch, W. T., Kim, H. S., & Sherman, D. K. (2007). Cultural differences in the impact of social support on psychological and biological stress responses. *Psychological Science, 18*, 9, 831-7.

Tabora, B. L., & Flaskerud, J. H. (1994), Depression Among Chinese Americans: A Review of the Literature. *Issues in Mental Health Nursing*, *15*(6), 569-584.

Tennen, H., Affleck, G., Armeli, S., & Carney, M. A. (2000). A daily process approach to coping: Linking theory, research, and practice. *American Psychologist, 55,* 626-636.

Trommsdorff, G., & Essau, C. A. (1998). Japanese and German adolescents' control orientation: A cross-cultural study. In G. Trommsdorff, W. Friedlmeier, & H. Kornadt (Eds.), *Japan in transition: Sociological and psychological aspects* (pp. 198-211). Berlin, Germany: Pabst Science.

Trommsdorff, G., & Friedlmeier, W. (1993). Control and responsiveness in Japanese and German mother-child interactions. *Early Development and Parenting, 2,* 65-78.

Tseng, W. (1975). The nature of somatic complaints among psychiatric patients: The Chinese case. *Comprehensive Psychiatry, 16,* 237–245.

Tucker, L. R., & Lewis, C. (1973). A reliability coefficient for maximum likelihood factor analysis. *Psychometrika, 38,* 1–10.

Turner, R. J., Frankel, G., & Levin, D. M. (1983). Social support: conceptualization, measurement, and implications for mental health. In Greenley J. R. & Simmons R. G. (eds), *Research in Community and Mental Health* (pp 67-111). Greenwich, CT: JAI Press.

Tweed, R. G., White, K., & Lehman, D. R. (2004). Culture, Stress, and Coping: Internally- and Externally-Targeted Control Strategies of European Canadians, East Asian Canadians, and Japanese. *Journal of Cross-Cultural Psychology, 35*(6), 652-668.

Uba, L. (1992). Cultural barriers to health care for Southeast Asian refugees. *Public Health Reports, 107*(5), 544-548.

Uba, L. (1994). *Asian-Americans: Personality patterns, identity, and mental health.* New

York, NY: Guilford Press.

Uehara, E. S., Takeuchi, D. T., & Smukler, M. (1994). Effects of combining disparate groups in the analysis of ethnic differences: Variations among Asian American mental health service consumers in level of community functioning. *American Journal of Community Psychology, 22*(1), 83-99.

Unger, J. B., Li, Y., Johnson, C. A., Gong, J., Chen, X., Li, C. Y., Trinidad, D. R., ... Lo, A. T. (2001). Stressful Life Events Among Adolescents in Wuhan, China: Associations With Smoking, Alcohol Use, and Depressive Symptoms. *International Journal of Behavioral Medicine, 8*(1), 1-19.

U.S. Census Bureau (2009). An Older and More Diverse Nation by Midcentury. Available at: http://www.census.gov/newsroom/releases/archives/population/cb08-123.html. Access August 14, 2008.

Varma S. C., & Siris, S.G. (1996). Alcohol abuse in Asian Americans: epidemiological and treatment issues. *American Journal of Addiction, 5*,136–43.

Veenstra, M. Y., Lemmens, P. H., Friesema, I. H., Tan, F. E., Garretsen, H. F., Knottnerus, J. A., & Zwietering, P. J. (2007). Coping style mediates impact of stress on alcohol use: a prospective population-based study. *Addiction-Abingdon, 102*(12), 1890-1898.

Vega, W. A., Gil, A. G., Warheit, G. J., Apospori, E., & Zimmerman, R. S. (1993a). The relationship of drug use to suicidal behavior among Black, Hispanic, and White non-Hispanic adolescents. *Suicide and Life Threatening Behavior, 23*, 110 –119.

Vega, W. A., Gil, A. G., Warheit, G. J., Zimmerman, R. S., & Apospori, E. (1993b). Acculturation and delinquent behavior among Cuban American adolescents: Toward and empirical model. *American Journal of Community Psychology, 21*, 113–125.

Vendetti, J., McRee, B., Miller, M., Christiansen, K., Herrell, J., & Marjuana Treatment Project Research Group (2002). Correlates of pre-treatment drop-out among persons with marijuana dependence. *Addictions, 97*, 125-134.

Walters, K. L., Simoni, J. M., & Evans-Campbell, T. (2002). Substance Use Among American Indians and Alaska Natives: Incorporating Culture in an "Indigenist" Stress-Coping Paradigm. *Public Health Reports, 117*(4), 104-117.

Wampold, B. E. (2007). Psychotherapy: The humanistic (and effective) treatment. *American Psychologist, 62*, 857–873.

Weiss, B., Tram, J. M., Weisz, J. R., Rescorla, L., & Achenbach, T. M. (2009). Differential symptom expression and somatization in Thai versus U.S. children. *Journal of Consulting and Clinical Psychology, 77*(5), 987-92.

Weisz, J. R., Rothbaum, F. M., & Blackburn, T. C. (1984). Standing out and standing in: The psychology of control in America and Japan. *American Psychologist, 39*, 955–969.

Welte, J. W. (1998) Stress and elderly drinking. In *Alcohol Problems and Aging. NIAAA Research Monograph* (No. 33), Gomberg, E. S. L., Hegedus, A. M., & Zucker, R. A. (eds) (pp. 229–246). NIH Publication No. 98-4163, Bethesda.

Welte, J. W., & Mirand, A. L. (1995). Drinking, problem drinking and life stressors in the elderly general population. *Journal of Studies on Alcohol, 56*, 67-73.

Weston, R., Gore, P. A., Chan, F., & Catalano, D. (2008). An introduction to using structural equation models in rehabilitation psychology. *Rehabilitation Psychology, 53*(3), 340-356.

Westermeyer, J. (1990). Motivations for uprooting and migration. In W. H. Holtzman & W. H. Bornemann (Eds.), *Mental health of immigrants and refugees* (pp. 78–89). Austin, TX: Hogg Foundation for Mental Health.

Williams, C. L., & Berry, J. W. (1991). Primary prevention of acculturative stress among refugees. *American Psychologist, 46*(6), 632-641.

Wills, T. A., & Shiffman, S. (1985). Coping and substance use: A conceptual framework. In S. Shiffman & T. A. Wills (Eds), *Coping and substance use* (pp. 1-35). Orlando, FL: Academic Press.

Wilsnack, R. W., Wilsnack, S. C., & Klassen, A. D. (1984). Women's drinking and drinking problems: patterns from a 1981 national survey. *American Journal of Public Health, 74*(11), 1231-8.

Windle, M., & Windle, R. C. (1996). Coping strategies, drinking motives, and stressful life events among middle adolescents: associations with emotional and behavioral problems and with academic functioning. *Journal of Abnormal Psychology, 105*(4), 551-60.

Witkiewitz, K., & Bowen, S. (2010). Depression, craving, and substance use following a randomized trial of mindfulness-based relapse prevention. *Journal of Consulting and Clinical Psychology, 78*, 3, 362-74.

Witkiewitz, K., Bowen, S., Douglas, H., & Hsu, S. H. (2012). Mindfulness-based relapse prevention for substance craving. *Addictive Behaviors, 38*(2), 1563-1571.

Witkitwitz, K., & Marlatt, G. A. (2007). *Therapist's Guide to Evidence-Based Relapse Prevention (Practical Resources for the Mental Health Professional)* (pp. 215-235). New York, NY: Academic Press.

Wong, F. Y., Huang, Z. J., Thompson, E. E., De Leon, J. M., Shah, M. S., Park, R. J., Do, T. (2007). Substance Use Among a Sample of Foreign- and U.S.-Born Southeast Asians in an Urban Setting. *Journal of Ethnicity in Substance Abuse, 6*(1), 45-66.

World Health Organization (2013). *Drink driving: Legal BAC limits by country.*

Wrenn, C. G. (1962). The culturally encapsulated counselor. *Harvard Educational Review, 32*, 444–449.

Yancey, A. K., Ortega, A. N., & Kumanyika, S. K. (2006). Effective recruitment and retention of minority research participants. *Annual Review of Public Health, 27*, 1-28.

Ying, Y. W., & Hu, L. (1994). Public outpatient mental health services: Use and outcome among Asian Americans. *American Journal of Orthopsychiatry, 64*(3), 448-455.

Yee, B. W., & Nguyen, D. T. (1987). Correlates of drug use and abuse among Indochinese refugees: mental health implications. *Journal of Psychoactive Drugs, 19*(1), 77-83.

Yen, S., Robins, C. J., & Lin, N. (2000). A cross-cultural comparison of depressive symptom manifestation: China and the United States. *Journal of Consulting and Clinical Psychology, 68*(6), 993-999.

Zane, N. W. S., Hatanaka, H., Park, S. S., & Akutsu, P. (1994). Ethnic-specific mental health services: Evaluation of the parallel approach for Asian American clients. *Journal of Community Psychology, 22*(2), 68-81.

Zane N. W. S., & Kim J. H. (1994). Substance use and abuse. In N. W. S. Zane, D. T. Takeuchi, & K. N. J. Young (Eds). *Confronting Critical Health Issues of Asian and Pacific Islander Americans* (pp. 316-345). Thousand Oaks, CA: Sage.

Zane, N. W., Park, S., & Aoki, B. (1999). The development of culturally valid measures for assessing prevention impact in Asian American communities. In The Development of

Culturally Valid Measures for Assessing Prevention Impact in Asian American Communities (DHHS Publication No. SMA 98-3193, pp. 61-89).

Table 1

Demographic Information of Study Participants (N = 92)

Characteristics	n	%
Male	83	90.2
Foreign born	79	85.9
Age		
18-29	23	25
30-41	25	27.2
42-53	32	34.8
54-65	12	13
Immigrant status at time of entering U.S. among foreign-born participants (n =79)		
U.S. citizen	5	6.3
Immigrant	34	43
Refugee	33	41.8
Declined to answer	7	8.9
Years lived in the U.S. among foreign-born participants (n = 79)		
0-10	7	8.9
11-20	14	17.7
21-30	38	48.1
31-40	20	25.3
Current immigration status		
U.S. citizen	45	48.9
Immigrant	24	26.1
Refugee	16	17.4
Declined to answer	7	7.6
Ethnicity		
Vietnamese	34	36.9
Cambodian	17	18.5
Laotian	11	11.9
Filipino	8	8.7
Other Asian	22	23.9
Married or with a domestic partner	20	21.7
Years of school completed		
1 - 8 years	18	19.6
9 - 12 years	47	51.1
13 - 16 years	27	29.3
Income		
Less than 10,000	52	56.5
10,000 - 19,999	18	19.6
20,000 - 29,999	13	14.1
30,000 and above	8	8.7

English as second language	82	89.1
In what language does the participant think?		
Native only and native more than English	42	46.7
Equal	9	9.8
English more than native or English only	41	44.6
Reasons for seeking treatment		
DUI	75	81.5
Non-DUI alcohol-related arrest	12	13
Voluntary	5	5.4
Number of DUI among participants who had at least one DUI (n = 78)		
One	41	52.6
Two	26	33.3
Three or more	9	11.5
Five	2	2.6
Number of days from treatment admission to interview		
Within the first two month of intake	30	32.6
Two month to six month	32	34.8
Six month and above	30	32.6

Table 2

Characteristics of the Sample on Stressful Life Events, Acculturative Distress Scale, Family Conflict Scale, Beck Depression Inventory, Beck Anxiety Inventory, BSI-Somatic Symptoms, Alcohol Use Coping Motives, CCSI- Avoidance and Detachment Coping Style, Total Drinking Days before Treatment Admission, Drinks per Drinking Day, Alcohol Use, Short Inventory of Problems, and SIP subscales (N = 92)

Scale	*M*	*SD*	Skewness	Alpha
Stressful Life Events	5.27	3.14	0.84	-
Acculturative Distress Scale	2.46	1.98	0.59	0.62
Family Conflict Scale	20.88	5.97	0.57	0.78
Beck Depression Inventory	17.62	11.52	0.94	0.87
Beck Anxiety Inventory	8.91	9.47	1.26	0.87
BSI-Somatic Symptoms	3.37	3.85	1.78	0.74
Alcohol Use Coping Motives	13.17	6.86	0.69	0.87
CCSI- Avoidance and Detachment Coping Style	9.37	5.94	0.72	0.64
Total Drinking Days before Treatment Admission	9.25	16.34	3.12	-
Drinks per Drinking Day (n = 56)	7.35	5.86	1.38	-
Alcohol Use (Drinking Days by Drinks per Drinking Day)	85.64	182.14	2.91	-
Short Inventory of Problems	18.22	12.87	0.32	0.93
SIP- Interpersonal	3.35	3.27	0.55	0.78
SIP- Intrapersonal	3.65	3	0.4	0.86
SIP- Impulse-Control	4.28	2.71	0.12	0.62
SIP- Social	3.71	3.24	0.26	0.82
SIP- Physical	3.22	2.97	0.54	0.80

Note. BSI = Brief Symptom Inventory, CCSI = Collectivist Coping Styles Inventory, and SIP = Short Inventory of Problems.

Table 3

Correlations among All Variables in the Path Models (N = 92)

	SLE	ADS	FCS	BDI	BAI	BSI-Somatic	Alcohol Use Coping Motives	CCSI-Avoidance and Detachment	Alcohol Use	SIP
SLE	-	0.30**	0.08	0.26*	0.24*	0.26*	0.27**	0.04	0.37**	0.20
ADS	0.30**	-	-0.16	0.33**	-0.01	0.02	0.21	-0.10	0.08	0.19
FCS	0.08	0.08	-	0.11	0.01	0.21	0.24*	-0.01	0.17	0.04
BDI	0.26*	0.33**	0.11	-	0.48**	0.39**	0.36**	0.17	0.18	0.24*
BAI	0.24*	-0.01	0.01	0.48**	-	0.70**	0.31**	0.35**	0.27**	0.15
BSI-Somatic	0.26*	0.02	0.21*	0.39**	0.65**	-	0.28**	0.22*	0.34**	0.11
Alcohol Use Coping Motives	0.27**	0.21	0.24*	0.36**	0.31**	0.28**	-	0.07	0.32**	0.38**
CCSI Avoidance and Detachment	0.04	-0.10	-0.01	0.17	0.35**	0.22*	0.07	-	0.09	0.17
Alcohol Use	0.37**	0.08	0.17	0.18	0.27**	0.34**	0.32**	0.09	-	0.17
SIP	0.20	0.19	0.04	0.24*	0.15	0.11	0.38**	0.17	0.17	-

Note: ADS = Acculturative Distress Scale, BAI = Beck Anxiety Inventory, BDI = Beck Depression Inventory, BSI = Brief Symptom Inventory, CCSI = Collectivist Coping Styles Inventory, FCS = Family Conflict Scale, SLE = Stressful Life Events, and SIP = Short Inventory of Problems (* $p \leq .05$ ** $p \leq .01$).

Table 5

Path Models of Hypothesized Relations (N = 92)

Hypothesized relations	Estimates (β)	*SE*	p
Model 1			
SLE → Depression	0.283	0.103	0.006
SLE → Anxiety	0.265	0.105	0.011
Depression → Coping Motives	0.319	0.133	0.017
Anxiety → Coping Motives	0.199	0.136	0.144
Coping Motives → Alcohol Use	0.349	0.099	< 0.001
Coping Motives → Alcohol Use Problems	0.399	0.104	< 0.001
Alcohol Use → Alcohol Use Problems	0.024	0.109	0.827
Depression ↔ Anxiety	0.509	0.094	< 0.001
Revised Model			
SLE → Depression	0.282	0.103	0.006
SLE → Anxiety	0.265	0.105	0.011
Depression → Coping Motives	0.318	0.133	0.017
Anxiety → Coping Motives	0.195	0.136	0.153
Coping Motives → Alcohol Use	0.258	0.104	0.013
Coping Motives → Alcohol Use Problems	0.396	0.103	< 0.001
Alcohol Use → Alcohol Use Problems	0.029	0.107	0.785
Depression ↔ Anxiety	0.510	0.094	< 0.001
SLE ↔ Alcohol Use	0.317	0.098	0.001

Note: SLE = Stressful Life Events.

Table 6.

Path Models of Hypothesized Relations (N = 92)

Hypothesized relations	Estimates (β)	*SE*	p
SLE → Depression	0.121	0.129	0.346
AS → Depression	0.371	0.167	0.026
FC → Depression	0.045	0.132	0.732
SLE → Anxiety	0.321	0.127	0.011
AS → Anxiety	-0.174	0.174	0.315
FC → Anxiety	0.048	0.134	0.720
SLE → Somatic Symptoms	0.390	0.132	0.003
AS → Somatic Symptoms	-0.196	0.183	0.283
FC → Somatic Symptoms	0.330	0.140	0.019
Depression → Coping Motives	0.353	0.142	0.013
Anxiety → Coping Motives	-0.391	0.449	0.384
Somatic Symptoms → Coping Motives	0.605	0.411	0.141
Avoidance and Detachment → Coping Motives	-0.009	0.156	0.952
Depression → Avoidance and Detachment	-0.033	0.168	0.842
Anxiety → Avoidance and Detachment	0.727	0.396	0.067
Somatic Symptoms → Avoidance and Detachment	-0.282	0.395	0.475
Coping Motives → Alcohol Use	0.281	0.102	0.006
Coping Motives → Alcohol Use Problems	0.395	0.104	< 0.001
Alcohol Use → Alcohol Use Problems	0.026	0.108	0.812
Depression ↔ Anxiety	0.619	0.096	< 0.001
Somatic Symptoms ↔ Anxiety	0.922	0.065	< 0.001
Depression ↔ Somatic Symptoms	0.530	0.127	< 0.001
SLE ↔ Alcohol Use	0.305	0.093	0.001

Note: AS = Acculturative Stress, FC = Family Conflict, and SLE = Stressful Life Events.

Table 7.

Path Models of Hypothesized Relations without Anxiety (N = 92)

Hypothesized relations	Estimates (β) in full model	Estimate (β) in current model	*SE* in full model	*SE* in current model	*p full model*	*p in current model*
SLE → Depression	0.121	0.121	0.129	0.128	0.346	0.343
AS → Depression	0.371	0.376	0.167	0.165	0.026	0.023
FC → Depression	0.045	0.047	0.132	0.133	0.732	0.726
SLE → Somatic Symptoms	0.390	0.381	0.132	0.135	0.003	0.005
AS → Somatic Symptoms	-0.196	-0.225	0.183	0.185	0.283	0.222
FC → Somatic Symptoms	0.330	0.314	0.140	0.144	0.019	0.029
Depression → Coping Motives	0.353	0.325	0.142	0.129	0.013	0.012
Somatic Symptoms → Coping Motives	0.605	0.232	0.411	0.147	0.141	0.115
Avoidance and Detachment → Coping Motives	-0.009	-0.043	0.156	0.139	0.952	0.759
Depression → Avoidance and Detachment	-0.033	0.091	0.168	0.165	0.842	0.580
Somatic Symptoms → Avoidance and Detachment	-0.282	0.272	0.395	0.172	0.475	0.114
Coping Motives → Alcohol Use	0.281	0.278	0.102	0.102	0.006	0.006
Coping Motives → Alcohol Use Problems	0.395	0.396	0.104	0.104	< 0.001	< 0.001
Alcohol Use → Alcohol Use Problems	0.026	0.027	0.108	0.108	0.812	0.803
Depression ↔ Somatic Symptoms	0.530	0.546	0.127	0.127	< 0.001	< 0.001
SLE ↔ Alcohol Use	0.305	0.307	0.093	0.094	0.001	0.001

Note: AS = Acculturative Stress, FC = Family Conflict, and SLE = Stressful Life Events.

Table 8.

Path Models of Hypothesized Relations without Somatic Symptoms (N = 92)

Hypothesized relations	Estimates (β) in full model	*Estimates (β) in current model*	*SE* in full model	*SE* in current model	*p* in full model	*p* in current model
SLE → Depression	0.121	0.126	0.129	0.128	0.346	0.322
AS → Depression	0.371	0.370	0.167	0.167	0.026	0.027
FC → Depression	0.045	0.041	0.132	0.135	0.732	0.761
SLE → Anxiety	0.321	0.325	0.127	0.125	0.011	0.010
AS → Anxiety	-0.174	-0.160	0.174	0.174	0.315	0.357
FC → Anxiety	0.048	0.024	0.134	0.135	0.720	0.862
Depression → Coping Motives	0.353	0.335	0.142	0.133	0.013	0.012
Anxiety → Coping Motives	-0.391	0.213	0.449	0.159	0.384	0.182
Avoidance and Detachment → Coping Motives	-0.009	-0.071	0.156	0.153	0.952	0.644
Depression → Avoidance and Detachment	-0.033	-0.041	0.168	0.165	0.842	0.806
Anxiety → Avoidance and Detachment	0.727	0.487	0.396	0.154	0.067	0.002
Coping Motives → Alcohol Use	0.281	0.276	0.102	0.102	0.006	0.007
Coping Motives → Alcohol Use Problems	0.395	0.396	0.104	0.103	< 0.001	< 0.001
Alcohol Use → Alcohol Use Problems	0.026	0.029	0.108	0.108	0.812	0.788
Depression ↔ Anxiety	0.619	0.610	0.096	0.097	< 0.001	< 0.001
SLE ↔ Alcohol Use	0.305	0.307	0.093	0.094	0.001	0.001

Note: AS = Acculturative Stress, FC = Family Conflict, and SLE = Stressful Life Events.

Table 9.

Path Models of Hypothesized Relations without Somatic Symptoms with Culturally-relevant Paths Fixed to 0 (N = 92)

Hypothesized relations	Estimates (β) in full model	*Estimates (β) in current model*	*SE* in full model	*SE* in current model	*p* in full model	*p* in current model
SLE → Depression	0.121	0.282	0.129	0.103	0.346	0.006
AS → Depression	0.371	0	0.167	-	0.026	-
FC → Depression	0.045	0	0.132	-	0.732	-
SLE → Anxiety	0.321	0.264	0.127	0.104	0.011	0.011
AS → Anxiety	-0.174	0	0.174	-	0.315	-
FC → Anxiety	0.048	0	0.134	-	0.720	-
Depression → Coping Motives	0.353	0.320	0.142	0.133	0.013	0.017
Anxiety → Coping Motives	-0.391	0.194	0.449	0.136	0.384	0.155
Avoidance and Detachment → Coping Motives	-0.009	0	0.156	-	0.952	-
Depression → Avoidance and Detachment	-0.033	0	0.168	-	0.842	-
Anxiety → Avoidance and Detachment	0.727	0	0.396	-	0.067	-
Coping Motives → Alcohol Use	0.281	0.271	0.102	0.102	0.006	0.008
Coping Motives → Alcohol Use Problems	0.395	0.397	0.104	0.103	< 0.001	< 0.001
Alcohol Use → Alcohol Use Problems	0.026	0.029	0.108	0.108	0.812	0.791
Depression ↔ Anxiety	0.619	0.510	0.096	0.094	< 0.001	< 0.001
SLE ↔ Alcohol Use	0.305	0.310	0.093	0.094	0.001	0.001

Note: AS = Acculturative Stress, FC = Family Conflict, and SLE = Stressful Life Events.

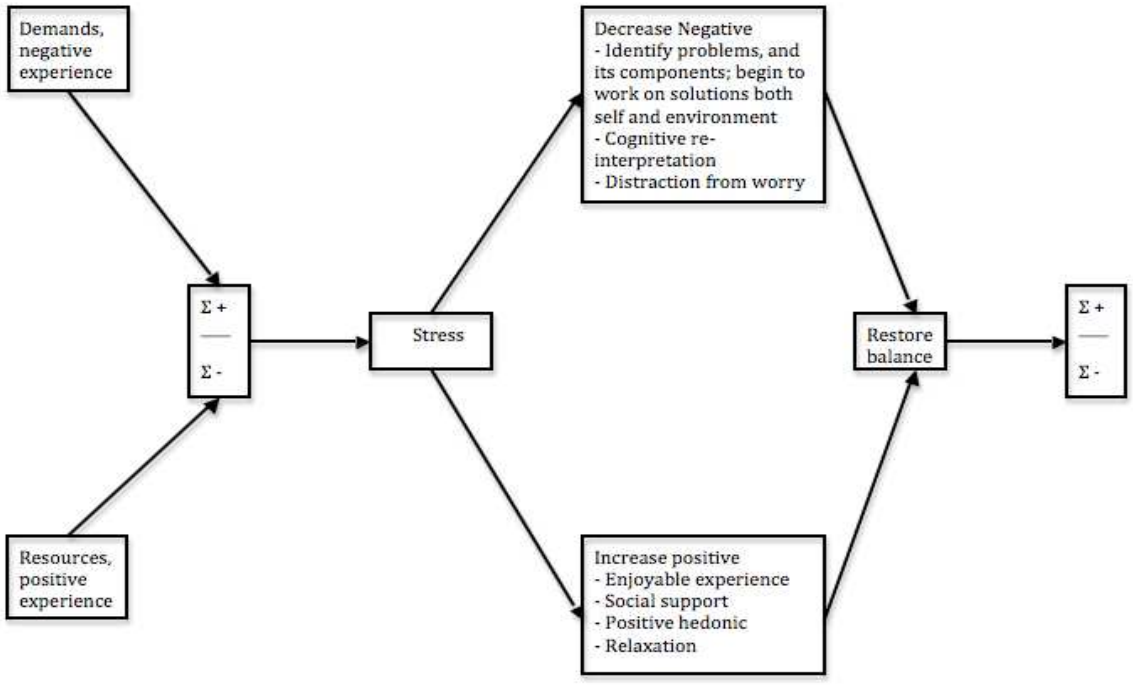

Figure 1. Wills and Shiffman's theoretical model of substance use.

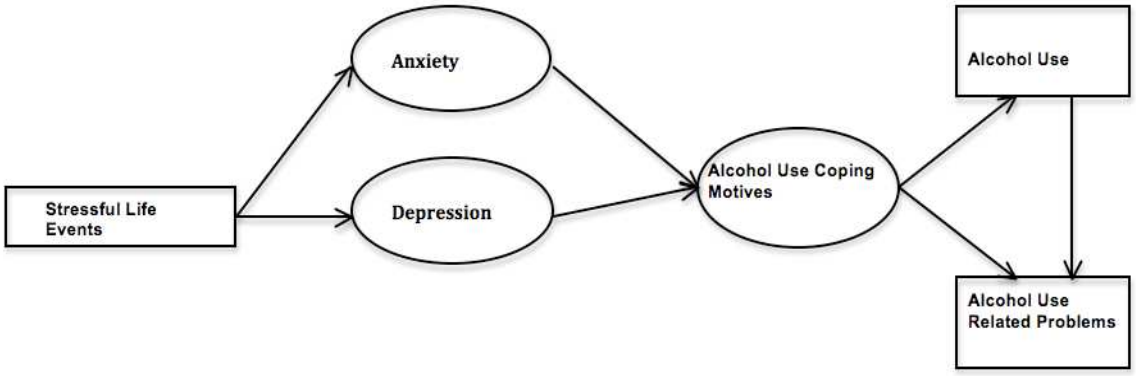

Figure 2. Stress and coping model of alcohol use.

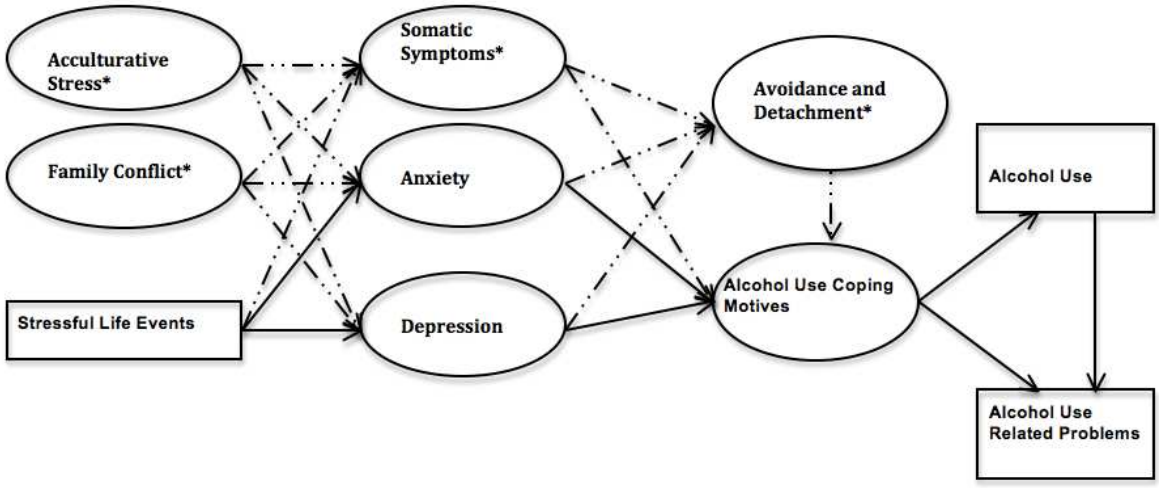

Figure 3. Heuristic model representing stress and coping factors hypothesized to be associated with alcohol use and related problems in Asian Americans. Dotted lines indicate culturally-relevant pathways.

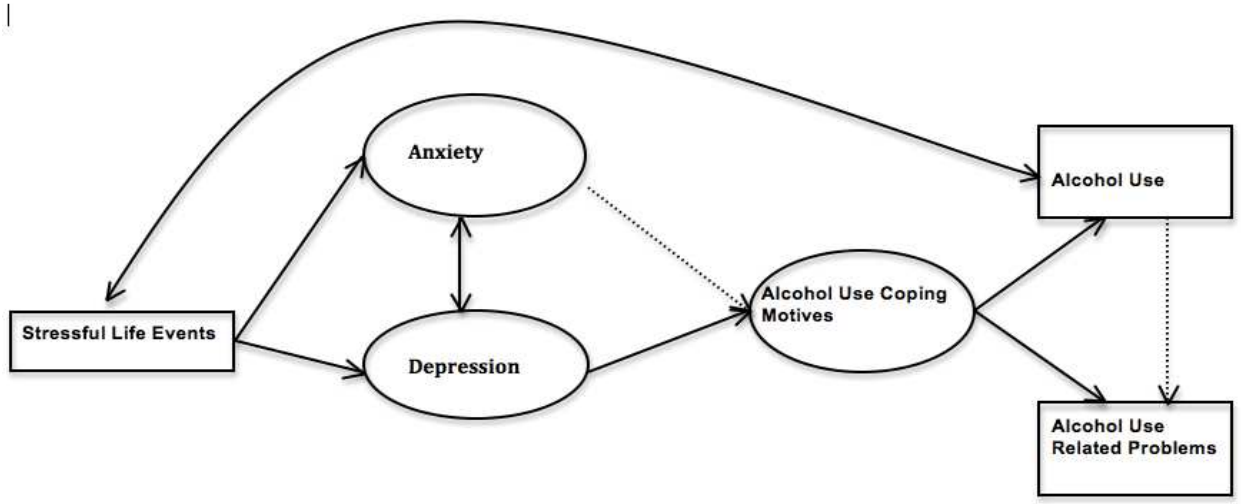

Figure 4. Stress and coping model of alcohol use in this sample of treatment-seeking Asian Americans. Solid lines indicate significant relations and dotted lines indicate non-significant relations.

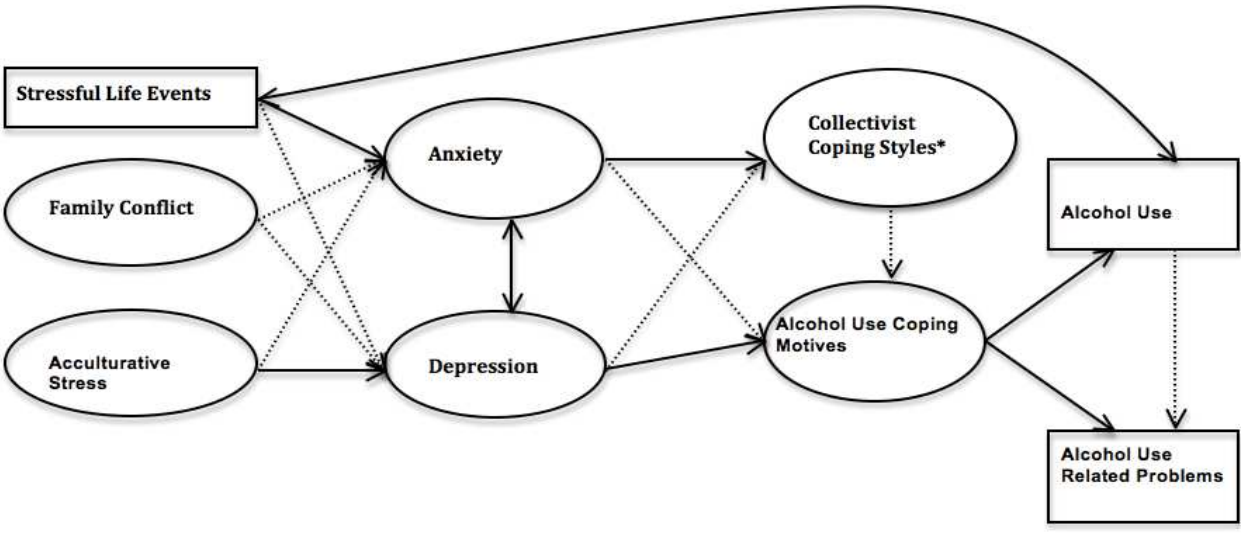

Figure 5. Heuristic model representing stress and coping factors hypothesized to be associated with alcohol use and related problems in this sample of treatment-seeking Asian Americans. Solid lines indicate significant relations and dotted lines indicate non-significant relations.