Published in final edited form as:
*J Cross Cult Psychol*. 2011 January ; 42(1): 104–119. doi:10.1177/0022022110362747.

# Psychosocial Adjustment and Substance Use of Cambodian and Vietnamese Immigrant Youth

**May Lim**
Counseling Psychology, University of Oregon

**Elizabeth A. Stormshak** and **Corrina A. Falkenstein**
Counseling Psychology and Child and Family Center University of Oregon

## Abstract

Southeast Asians living in the United States are a unique Asian immigrant population. They are considered one of the "newer" Asian immigrant groups, tend to be less affluent compared with their East and South Asian counterparts, and are steadily growing in number (U.S. Bureau of the Census, 2000). Unfortunately, few studies exist specifically about Southeast Asian immigrants. The lack of studies, coupled with the community's growing mental health issues, suggests the need for increased research on this population. This study contributes to the literature by examining the extent to which identification with Vietnamese or Cambodian culture, peer relationships, and coping behaviors affect substance use among Cambodian and Vietnamese immigrant youth. A sample of 102 participants, age 12–18 years, completed self-report measures regarding these variables. Overall, results indicate that identification with one's culture of origin and coping behaviors moderate the relationship between deviant peer association and substance use. Results are discussed within a contextual model of problem behavior among Southeast Asian youth.

---

During the past decade, many gains have been made in the area of child and adolescent psychopathology and substance use. However, research has lagged in terms of understanding psychological problems and the diverse pathways to adaptive and maladaptive outcomes for children, adolescents, and families of color. Despite the growing ethnic diversity of the North American population, ethnic representation and ethnicity-related issues have received relatively little attention in studies of child and adolescent psychopathology and related risk behavior such as substance use. Investigators have based theories of child behavior on data drawn chiefly from European American samples (Mash & Dozois, 2003), leaving largely unexamined the cultural factors that may contribute to these problems or that may work as protective factors that moderate the degree of problem behaviors and risk. Yet, accounting for these cultural factors in developmental models of problem behavior would facilitate accurate interpretation and the application of study findings to clinical practice. This study sought to address this gap in the literature by examining the psychosocial adjustment and substance use associated with one ethnic minority population, Southeast Asian immigrant adolescents in the United States.

Vietnamese and Cambodian adolescents (hereafter included in the general terms *Southeast Asian adolescents* or *Southeast Asian youth*) are a population of particular interest because they are one of the newer immigrant groups and tend to be less affluent than other Asian groups. The Southeast Asian immigrant population has increased steadily since its earliest influx in 1975, when 133,438 immigrants from Vietnam, Cambodia, and Laos arrived in the United States (U.S. Bureau of the Census, 2000). That number increased to 534,508 in 1996 and to 567,644 in 2001 (U.S. Office of Refugee Resettlement, 2002). The context of this population's arrival is also extraordinarily different from that of other Asian immigrant groups in that they experienced high levels of trauma prior to entering the United States

(Clarke, Sack, and Goff, 1993). Like many immigrant groups before them, Southeast Asian immigrants experience distinct stages in the process of adapting to a new culture (Diaz-Rico & Weed, 1995; Wilson-Portuondo, 2003). According to Wilson-Portuondo's Stages of Cultural Adaptation, in the initial *euphoria* stage some immigrants may find being in a new culture thrilling and fascinating. Over a period of time, some individuals experience *culture shock*, during which individuals become aware of cultural differences and may begin feeling disoriented. In the third stage, individuals may experience *anomie* or an identity crisis, during which they may feel unsure whether to identify with their culture of origin or the host culture. From here most immigrants move toward *acculturation* (when value and meaning are given to the customs and beliefs of both cultures) or *assimilation* (when the customs and beliefs of the new culture replace those of the culture of origin). Relevant to these experiences, Southeast Asian adults and youth immigrants are an Asian subpopulation at particular risk for a variety of mental health problems.

The paucity of research on Southeast Asian immigrant youth stems in part from the misperception that all Asian immigrant groups are model minorities. This misperception has led psychological research initiatives to focus on idealized aspects of the culture that influence an individual (Szapocznik & Kurtines, 1993). For Asian American immigrants, the focus has been the overemphasis on academic achievement. However, this stereotype of academic success and social mobility is not always the case. In reality, Southeast Asian immigrant youth are more likely to live in poverty than are their East Asian counterparts (Rumbaut, 2000). Consequently, Southeast Asian immigrant students are likely to attend low-income public schools with few resources. and experience many factors associated with poverty (e.g., neighborhood violence, malnourishment, few academic resources) that put them at risk for behavioral problems and maladjustment.

Demographic research suggests a high rate of behavioral problems among various Southeast Asian groups. Southeast Asian youth (identified as Laotian, Thai, and Cambodian) from the Central California Valley were disproportionately represented in Youth Authority records in 2002 (National Council for Crime and Delinquency, 2003). Bankston and Zhou (1997) also documented the bifurcation of Vietnamese immigrant youth into two distinct social groups: academic achievers or delinquents. Their findings showed that as Vietnamese youth adapt to American culture, some develop delinquent behaviors, including substance use and criminal activity. The authors concluded that Southeast Asian youth are just as likely to engage in delinquent behavior as they are to be academic achievers.

**Acculturation as a predictor of outcomes—**Several studies have indicated that a high level of connection with ones' culture of origin, or the extent to which immigrant youth and families identify with their culture of origin, may serve as a protective factor.

Although studies from other ethnic groups have found a direct relationship between identification with the culture of origin and youth outcomes (Marsiglia, Kulis, & Hecht, 2001; Smokowski & Bacallao, 2006), studies examining the relationship specifically on Asian youth have resulted in conflicting findings. Nagasawa, Qian, and Wong's (2001) study of Asian youth indicated that bicultural youth (individuals who are highly acculturated to the Western culture yet are still connected to their ethnic community) are more resilient against marijuana use and delinquent behavior. On the other hand, Lim, Levenson, and Go (1998) did not find a direct relationship between adolescent acculturation levels and delinquency among Cambodian male adolescents in California, leaving the possibility of the existence of mediating and moderating variables.

The goal of this study was to gather additional information about the role of cultural identity in the substance use habits of Cambodian and Vietnamese youth. Consistent with studies of

other ethnic groups, we hypothesized identification with Vietnamese and Cambodian culture would serve as a buffer from the effects of deviant peer association on substance use.

## Deviant Peer Association

Studies from European American adolescent samples point to the role of deviant peer association in the prediction of later behavior problems (Patterson & Yoerger, 1999). *Deviant peer association* refers to relationships that youth have with peers who engage in deviant behavior, such as substance use and delinquent acts. Deviant peer association is related to a variety of negative outcomes for youth, including substance use and problem behavior (Dishion & Owen, 2002). Hahm, Lahiff, and Guterman (2004) found for Asian American adolescents, deviant peer association was a stronger predictor of negative youth outcomes than was acculturation level. In this study, acculturation effects were no longer statistically significant when the friend's alcohol and tobacco use was added to the model as a mediating variable. That is, binge drinking was not found to be attributable to high levels of acculturation, per se, but that social interaction is an important pathway by which highly acculturated adolescents become vulnerable to binge drinking. Results from Hahm et al. (2004) may not be generalizable to Southeast Asian immigrant youth given that the study sample had a small Southeast Asian subsample consisting of only 3.1% Vietnamese participants. We hypothesized that a direct relationship between deviant peer association and substance use would be found in our sample of Vietnamese and Cambodian youth, and that identification with culture of origin would moderate this relationship.

## Coping Behaviors

A substantial body of research also indicates that applied problem solving and coping behaviors play crucial adaptive roles in dealing with stressful life events. Adolescents with greater coping resources demonstrate lower levels of stress and less frequent stress symptoms (Allen & Hiebert, 1991; Dumont & Provost, 1999). Moreover, poor coping strategies in the context of stressful life events has been directly related to substance use behaviors (Johnson & Pandina, 2000; Sigueria, Diab, Bodian, & Rolnitzky, 2001; Wills, Sandy, Yaeger, Cleary, & Shinar). Given the level of stressors adolescent immigrants experience related to the acculturation process, the role of coping strategies is a particularly germane variable of interest for this population. We hypothesized that positive adolescent coping behaviors would buffer the relationship between deviant peer association and substance use.

## Current Study

Given the limited and conflicting research on Southeast Asian youth, the goal of this study was to collect data about the Vietnamese and Cambodian adolescent population and begin to construct models of substance use. A review of the literature described earlier identifies four important constructs to explore when researching the psychosocial development of Southeast Asian youths and their families: youth cultural identity level, deviant peer association, coping behaviors, and substance use. In this study, we tested two different models that examined the links between cultural identity, substance use, deviant peer association, and positive coping behaviors. In Model 1, cultural identity was proposed to moderate the relationship between deviant peer association and substance use. In Model 2, coping behaviors were proposed to moderate the relationship between deviant peer association and substance use. We also tested whether there were differences in our model results based on gender, ethnicity, and age.

# Method

## Participants

A sample of 102 Southeast Asian immigrant adolescents participated in this study, including an equivalent number of Vietnamese ($n$ = 50) and Cambodian ($n$ = 52) youth. Participants ranged in age from 12 to 18 years ($M$ = 15.12 years; $SD$ = 1.27). The sample included more adolescent girls ($n$ = 58) than boys ($n$ = 44). A power analysis indicated that the sample size of $N$ = 102 provided sufficient power to be 92% confident that a medium-size effect could be detected (Cohen, 1988). More than half of the sample (76.5%) had been born in the United States, and 23.5% of the sample had been born abroad. A majority of the sample (88.2%) reported having lived in the United States for more than 11 years, and 10.7% reported having lived in the United States for 10 years or less. Although more than one quarter of the sample (35.3%) endorsed speaking both English and their native language and more than half (57%) endorsed speaking English better than they spoke their native language, a large majority of the sample (72.6%) endorsed speaking at least some of their native language to their parents at home.

## Procedure

**Recruitment—**Several attempts were made to include agencies that work with high-risk youth from the Pacific Northwest, where the primary investigators were located, and Southern California. Some agencies declined to participate, explaining that it would be a liability to involve their high-risk population. In the end, participants were recruited from a convenience sample recruited from churches, youth groups, and community resource centers that support the Southeast Asian community in the greater Los Angeles area. The investigator explained the purpose of the study, the participants' role in the study, and confidentiality. Those who were interested in participating were asked to review and sign the adolescent assent form and have their parents review and sign the parent consent forms. Parent consent forms were also available in Cambodian and Vietnamese for parents whose first language was not English. All participants completed their surveys in English either alone or in a group. The investigator remained in the room while the participants completed their anonymous surveys, to monitor their activity and answer questions. Adolescent participants returned their surveys in sealed envelopes and received $5 gift certificates for their participation in the project.

## Measures

Adolescent participants completed seven self-report measures: a demographics questionnaire; the Adolescent Acculturation Survey (AAS); the Oregon Healthy Teens Survey (OHTS), which measured both deviant peer association and substance use; and items from the Life Events and Coping Inventory (LECI). These self-reports measured participants' cultural identity, affect, family relationships, and unmonitored behaviors. Risk factors, protective factors, and adolescent outcomes were assessed on the basis of the self-reports. Each packet of measures was counterbalanced so that the order of measures appeared at random for each participant and for each control to mitigate “order by response” interactions (i.e., invalid responses at the end of the packet resulting from fatigue or boredom).

**Adolescent cultural identity—**The AAS was used to assess participants' level of involvement in and identification with the Southeast Asian and U.S. cultures. This survey is adapted from the Acculturation Scale for Vietnamese Adolescents (Nguyen, Messe, & Stollak, 1999), a 44-item self-report with two subscales. The first measures the level of involvement and identification with Vietnamese culture, and the second measures the level of involvement and identification with U.S. culture. Items reflect attitudes, behaviors, and

values related to lifestyle, group interaction, family orientation, social behavior, and global involvement. This measure can be used for two purposes. First, this measure can be used to identify different categories of acculturation (e.g., bicultural, traditional, assimilated, marginalized). Second, this measure can be used to assess the level of involvement in the Vietnamese and American cultures (Nguyen et al., 1999).

To our knowledge, this measure has not been used with a Cambodian sample. We adapted the Vietnamese questions to the Cambodian sample by asking all the same questions but replacing the wording from Vietnamese to Cambodian so that we could be consistent with cultural identification for both ethnic groups. The questions from the Acculturation Scale for Vietnamese adolescents was adapted for this Cambodian sample by asking all the same questions but replacing references to the Vietnamese culture with references to the Cambodian culture. For example, “It is important for me to preserve my *Vietnamese* heritage” was changed to “It is important for me to preserve my *Cambodian* heritage.” In short, we made only one adaptation to the original measure to ensure that level of cultural identity was consistently measured for both ethnic groups.

The measure includes items that assess the level of involvement in the Vietnamese or Cambodian culture (e.g.,“It is important to me to preserve my Vietnamese/Cambodian heritage,” “Most of my closest friends are Vietnamese/Cambodian”) and the level of involvement in U.S. culture (e.g. “How often do you listen to American music?”, “How often do you read American newspapers or magazines?”). Each item is rated on a 5-point Likert-type scale (1 = *strongly disagree*, 3 = *neutral*, 5 = *strongly agree*), with a range of possible scores from 20 to 100 on the Vietnamese/Cambodian scale and 24 to 120 on the U.S Identification scale. Mean scores are generated for the Vietnamese/Cambodian scale and U.S. Identification scale. Higher mean scores on the measure reflect greater affiliation or sense of connection to that culture.

The AAS can be used to assign participants into one of four acculturation groups: *bicultural* (high scores on both scales), *assimilated* (high score on the U.S. scale and low score on the culture of origin scale), *traditional* (high score on the culture of origin scale and low score on the U.S. scale), or *marginal* (low scores on both scales). To calculate the scores and assign participants to the corresponding groups, the response items from the Vietnamese/ Cambodian and U.S. items are added together separately and divided by the total number of items for each cultural group, thus creating a sum composite score of affiliation to both Vietnamese/Cambodian and U.S. culture. Individuals with a composite score of 3 or greater on the Vietnamese or Cambodian *and* the U.S. items are considered bicultural. Individuals with a score of less than 3 on the Vietnamese or Cambodian items but greater than 3 on the U.S. items are considered assimilated. Participants scoring greater than 3 on the Vietnamese or Cambodian scale and less than 3 on the U.S. scale are considered traditional. Finally, participants scoring less than 3 on both the Vietnamese or Cambodian and U.S. Acculturation scales are considered marginalized.

In this study, 94% of the participants identified their acculturation level as bicultural ($n$ = 57) or assimilated ($n$ = 39). Few participants identified as traditionally or marginally acculturated ($n$ = 3 for each category). These preliminary analyses indicate that most of the Vietnamese and Cambodian adolescent immigrants in this sample identify strongly with the U.S. culture ($n$ = 96), but not all identify strongly with their culture of origin. Given the skewed nature of the data and unequal cell size of each group, we chose not to analyze the data by examining acculturation groups. Rather, only the Vietnamese/Cambodian identity scale was used for this study. On this scale higher scores on the Vietnamese or Cambodian scale represent higher levels of identification to that culture.

In total, there were 20 items on the Vietnamese/Cambodian Identity scale, with our participants' scores ranging from 38 to 85 ($M$ = 60.98, $SD$ = 10.32). The reliability for this measure was calculated, and the Cronbach's alpha of .83 suggests good reliability. There were 24 items on the U.S. Identity scale, with participants' scores ranging from 63 to 108 ($M$ = 86.08, $SD$ = 9.85). The reliability for this measure was calculated, and the Cronbach's alpha of .78 for the U.S. Identity scale suggests good reliability.

**Deviant peer association—**Response items from the OHTS (Ary et al., 1999), a comprehensive measure consisting of various scales of adolescent behavior and parenting practices, were used to construct the deviant peer association construct. The deviant peer association construct was based on five items from the OHTS related to the amount of time spent with deviant peers. Respondents answered items about how they spent time with their peers (e.g., “In the last week, how many times did you get together with friends who … get in trouble a lot, fight a lot, take things that don't belong to them, and smoke cigarettes or chew tobacco?”). For this measure, “0” represents never having spent time with a deviant peer during the past week, “1” represents 1 or 2 times, “2” represents 3 to 5 times, “3” represents 6 to 10 times, “4” represents 11 to 20 times, and “5” represents 20 or more times. Total scores on this subscale range from 0 to 25, with higher scores indicating more time spent with deviant peers. In our sample, adolescents reported spending between zero and twenty or more occasions with deviant peers in the past week with a mean of less than one occasion ($M$ = .70, $SD$ = 1.1). Good internal reliability was also found from this sample, with a Cronbach's alpha of .88 calculated for the Deviant Peer Association scale.

**Substance use—**The OHTS was also used to assess the level of substance use behaviors in our sample. Adolescents reported the frequency of use of five different substances within the past month (i.e., cigarettes, chewing tobacco or snuff, alcohol, marijuana, and stimulants). Cigarette smoking was assessed by asking adolescents to report how many times they had smoked in the past month. Lower scores indicated less use during the past month (e.g., the anchors for this scale were 0 = no substance use, 23 = smoked 3 or more packs of cigarettes in the past month). Study participants reported having smoked on average 0 to 1 cigarette in the past month ($M$ = .93, $SD$ = 3.65). Chewing tobacco and snuff use was measured by asking adolescents to report how many times they had used either substance in the past month (e.g., “0” represents “no chewing tobacco or snuff use,” and “13” represents “chewing tobacco or snuff 41 or more times in the past month”). Participants in our sample reported having used chewing tobacco or snuff on average between 0 and 1 time in the past month ($M$ = .27, $SD$ = 1.83).

Alcohol use was measured by asking participants to report how many times they had consumed alcohol in the past month (“0” represents “no alcohol use in the past month,” “13” represents “used alcohol 41 times or more in the past month”). The study sample reported having consumed alcohol an average of 1 time in the past month ($M$ = 1.01, $SD$ = 2.91).

Marijuana use was measured by asking participants to report how many times they had used marijuana in the past month (e.g., “0” represents “no marijuana use in the past month,” and “13” represents “used marijuana 41 times or more in the past month”). Study participants reported having used marijuana an average of between 0 and 1 time in the past month ($M$ = .85, $SD$ = 2.94).

Use of stimulants was measured by asking participants to report about their stimulants use in the past month (“0” represents “no stimulant use in the past month,” “13” represents “used stimulants 41 times or more in the past month”). Study participants reported having used stimulants between 0 and 1 time in the past month ($M$ = .54, $SD$ = 2.52). Because substance use was measured by using different numeric scales, we standardized substance use scores

to allow a comparison of use on a common scale. To create the composite score of total substance use, *z*-scores for each substance were calculated, and the substance use composite score was calculated as the mean of these *z*-scores. *Z*-scores create a mean score of zero for all substances; participants scoring above the mean of zero report greater than average substance use, and participants scoring below the mean of zero report less substance use than the mean for the sample. Good reliability was found from this sample, with a coefficient alpha of .82 for the Substance Use scale.

**Coping—**Adolescents completed a modified version of the Life Events and Coping Inventory (Dise-Lewis, 1988). Adolescents read the following prompt: "If I were feeling stressed, how likely is it that I would do this thing to try to cope with the stress? Then fill in the bubble of the number that shows how much you think you would do each thing *if you were feeling stressed*." Participants read statements related to the "stress-recognition" factor of the original LECI (e.g., I would talk to my parents, I would listen to music, I would talk to a friend, I would talk to a teacher/psychologist) and then rated each statement using a 9-point Likert-type scale ranging from 1 (*I would definitely not do this*) to 9 (*I would definitely do this*). The positive coping variable is a continuous variable. Scores can range from 12 to 108, with higher scores representing using more coping strategies. In our sample, adolescents reported $M = 53.38$ coping behaviors with a minimum of 20 and a maximum score of 108. Good reliability was found from this sample, with a coefficient alpha of .74 for the Coping scale.

## Results

Our sample comprised 102 Vietnamese and Cambodian youth between age 12 and 18 years ($M = 15.36$ for boys, $SD = 1.26$; $M = 14.93$ for girls, $SD = 1.25$). There were 26 girls and 26 boys in the Vietnamese sample ($n = 52$) and 20 boys and 32 girls in the Cambodian sample ($n = 52$). Of the sample, 51% identified as Cambodian and 49% identified as Vietnamese. As a whole, approximately 20% of the Cambodian and Vietnamese adolescents reported using tobacco, alcohol, or marijuana. Group difference *t*-tests revealed no statistically significant differences when comparing Vietnamese and Cambodian youth; sex differences, on the other hand, were found (see Table 1). Group difference *t*-tests revealed sex group differences in substance use; girls reported less substance use than did boys. Group difference *t*-tests revealed sex group differences in coping behaviors; girls reported using more coping behaviors than did boys (see Table 1).

### Cultural Identity, Deviant Peer Association, and Substance Use

Hierarchical multiple regression was used to assess first, whether being involved in deviant peer association was related to substance use, and second, whether Vietnamese/Cambodian cultural identification moderated the relationship between deviant peer association and substance use.

The demonstration of a moderator effect requires finding a significant Vietnamese/Cambodian Cultural Identity × Deviant Peers Association interaction. Multiple regression provides for the statistical testing of a moderator effect for continuous variables (here the cultural identity and deviant peer association) by including their product term at a later step in the regression equation (Barron & Kenny, 1986). A hierarchical, incremental *F* test then shows whether the interaction term adds predictably over and above the account provided by the additive model using just the two predictors. Prior to running regression analyses, predictor variables were centered at their mean (Aiken & West, 1991). We ran a hierarchical regression analysis to determine whether association with deviant peers was associated with substance use (see Table 2). In Step 1, deviant peer association was added as the predictor

variable. In Step 2, the moderator variable cultural identity was added to the model. In Step 3, the cross-product of Deviant Peers Association × Vietnamese/Cambodian Cultural Identity was entered as the interaction term. A significant increase in the multiple $R^2$ following the entry of the interaction term into a regression analysis already containing the cultural identity and deviant peers predictors provides evidence for a moderator effect (Cohen, Cohen, West, & Aiken, 2003).

The deviant peers' variable entered in Step 1 accounted for a significant portion of variance in substance use; the $R^2$ with the substance use criterion was .10. Therefore, 10% of the variance in substance use was accounted for by association with deviant peers. With the entry of cultural identity in Step 2, there was a significant increment in the amount of variance explained; the $R^2$ was .13 and the $R^2$ change was .04. The cultural identity variable explained an additional 4% of the variance in substance use, after controlling for the effects of deviant peer association. Finally, in Step 3, the interaction of Cultural Identity × Deviant Peers Association was added to the regression equation. In Step 3, the $R^2$ increased to .20 and the $R^2$ change of .06 was significant. Therefore, an additional 6% of variance was explained by adding the interaction term. Thus, after taking into account the effects of deviant peer association and cultural identity separately, there was still a significant increment in the explanation of substance use contributed by the Cultural Identity × Deviant Peers Association interaction. This finding provides empirical support for the moderating effect of cultural identity on the relationship between deviant peer association and substance use in adolescence.

The significant regression coefficient of −.26 for the interaction term indicates that the effect of cultural identity is to lessen the association of deviant peer association and substance use when identification to the culture of origin is high. Following Cohen and Cohen's (1983) recommendations, we graphed this interaction to interpret the moderating effect of cultural identity. The relatively flat regression line depicted in Figure 1 for the high cultural identity group shows that the association between deviant peers and substance use is less for adolescents who highly identify with their culture of origin (Vietnamese or Cambodian culture). The steepest regression line can be found for the group with the lowest levels of cultural identity, suggesting that for adolescents with lower levels of identification to the Vietnamese and Cambodian culture, the association between deviant peer association and substance use is greater. The results showed that cultural identity serves as a buffer (i.e., it protected the individual against the deleterious effects of associating with deviant peers) under conditions of high cultural identity.

**Identification with U.S. culture—**Next we created an interaction term with U.S. Identity × Deviant Peers Association to test whether identification with U.S culture would also moderate the relationship between association with deviant peers and substance use. The main effect of identification with U.S. culture on substance use was nonsignificant. The interaction term of U.S. Identity × Deviant Peers Association was not significantly related to substance use. In comparing the two Identity scales (identification with the U.S. culture and identification with the Vietnamese/Cambodian culture), only the identification with the Vietnamese/Cambodian culture scale revealed a statistically significant moderating effect of deviant peer association on substance use.

**Ethnicity—**Next, we were interested in whether there would be differences between Vietnamese and Cambodian youth on our variables of interest. First, we created a Vietnamese/Cambodian Cultural Identity × Ethnicity interaction term and tested whether this interaction term would be related to substance use. The interaction term and the main effect of ethnicity were not significantly related to substance use. Next, we created a Deviant Peers Association × Ethnicity interaction term. The interaction term and main effect were

nonsignificant, suggesting Vietnamese/Cambodian Cultural Identity was a significant moderator of association with deviant peers and substance use regardless of whether youth identified their ethnicity as Vietnamese or Cambodian.

**Age—**We were also interested in the effects of age on substance use. The main effect of age was not significantly related to substance use. Next we created an interaction term with Deviant Peers Association × Age on substance use. The interaction was significant, $R^2 = .25$, $F(1, 98) = 10.51$, $p < .01$. The beta value of .24 suggests for each one-year increase in age, substance use increased by .24. The graphical representation of the interaction shows affiliation with deviant peers was less associated with substance use for the youngest Vietnamese and Cambodian youth and more associated with substance use for the oldest adolescents in the sample (see Figure 2). Finally, we created a three-way interaction term: Vietnamese/Cambodian Cultural Identity × Deviant Peers Association × Age on substance use. The three-way interaction was significant, $R^2 = .07$, $F(1, 98) = 7.47$, $p < .01$. After examining the three-way interaction results, we found the relationship between Deviant Peers Association × Vietnamese/Cambodian Cultural Identity was significant for the oldest youth (i.e., youth whose age was greater than the participant mean age of 15.12 years), but was not significant for the youngest youth (i.e., youth whose age was less than 15.12 years).

**Gender—**We also examined the effects of gender on substance use. The main effect of gender was significantly related to substance use, $R^2 = .07$ $F(1, 98) = 7.36$, $p < .01$, with males reporting more substance use than did females. Next, we created an interaction term with Deviant Peers Association × Gender on substance use. The interaction of Deviant Peers Association × Gender on substance use was significant, $R^2 = .30$, $F(1, 98) = 13.52$, $p < .001$. The graphical representation of the interaction effect shows a clear relationship between male gender, affiliation with deviant peers, and substance use and less of an association between female gender, affiliation with deviant peers, and substance use (see Figure 3). Finally, we created a three-way interaction term which was not significant.

## Coping Behaviors, Deviant Peers, and Substance Use

We ran a hierarchical regression analysis to determine whether coping skills moderated the relationship between deviant peers and substance use. In Step 1, deviant peer association was added as the predictor variable. In Step 2, the moderator variable, coping behaviors, was added to the model. In Step 3, the cross-product of Deviant Peers Association × Coping Behaviors was entered as the interaction term (see Table 3).

As reported previously, the deviant peer association variable entered in Step 1 was significant. With the entry of coping behaviors in Step 2, there was a significant increment in the amount of variance explained; the $R^2$ was .16 and the $R^2$ change was .04. The coping variable explained an additional 4% of the variance in substance use, after controlling for the effects of deviant peer association. Finally, in Step 3, the interaction of Coping Behaviors × Deviant Peers Association was added to the regression equation. In Step 3, the $R^2$ increased to .25, and the $R^2$ change of .09 was significant. Therefore, an additional 9% of variance was explained by adding the interaction term. Thus, after taking into account the effects of deviant peer association and coping behaviors separately, there was still a significant increment in the explained variance of substance use contributed by the Coping Behaviors × Deviant Peers Association interaction. This finding provides empirical support for the moderating effect of coping behaviors on the relationship between deviant peers and substance use in adolescence.

The significant regression coefficient of −.31 for the interaction term indicates that the effect of coping behaviors is to lessen the impact of deviant peers on substance use when the level

of coping behavior is high. The relatively flat regression line depicted in Figure 4 for the high coping group shows that the association of deviant peers on teen substance use is less for the high coping group. The steepest regression line can be found for the low coping group, suggesting that for adolescents with lower levels of coping, the association of deviant peers on substance use is greater. The results showed that coping skills serve as a buffer (i.e., reduce deviant peer association) under conditions of high coping. When we entered ethnicity into this model, all interactions and main effects were nonsignificant. The results suggest that coping skills moderated the relationship between deviant peer association and substance use for both the Vietnamese youth and the Cambodian youth in our sample.

**Age—**We also examined the effect of age on coping behaviors, deviant peers association, and substance use. We created an Age × Coping substance use interaction term. The interaction was nonsignificant. We then created a three-way interaction term to test the association of Deviant Peers Association × Coping × Age with substance use. The three-way interaction was significant, $R^2 = .28$ $F(1, 98) = 9.09$, $p < .01$. After examining the three-way interaction results, we found the relationship of Deviant Peers Association × Coping was significant for the oldest youth (i.e., youth whose age was greater than the participant mean age of 15.12 years), but was not significant for the youngest youth (i.e., youth whose age was less than 15.12 years). Therefore, coping moderated the relationship between deviant peer association and substance use for only the oldest youth.

**Gender—**Finally, we studied the effect of gender on coping behaviors, deviant peer association, and substance use. We tested the interaction of Gender × Coping on substance use. The interaction term was nonsignificant. We created a three-way interaction term of Deviant Peers Association × Gender × Coping on substance use. The interaction was significant, $R^2 = .05$, $F(1, 98) = 4.78$, $p < .05$. After examining the three-way interaction results, we found the relationship between Deviant Peers Association × Coping was significant only for the males in our sample.

## Discussion

This study examined the role cultural identity and coping play in substance use outcomes for Southeast Asian adolescents. The proposed models examined the intersection of culture and context (i.e., peer relationships), as well as culture and individual factors (i.e., individual coping skills, ethnicity, gender, and age) for influencing youth outcomes. Overall, deviant peer association was connected with substance use, but identification with the Vietnamese/Cambodian culture and coping skills buffered this relationship. These results suggest a model similar to models that have been tested with other diverse samples, in which identification with the culture of origin protects youth from the development of risk behavior.

Findings from this study are consistent with current research suggesting that some Asian groups are at risk for substance use (Bankston & Zhou, 1997; Hahm et al., 2004; Unger et al., 2000). The significant interaction of cultural identity and deviant peer association suggests that a weaker identification with one's culture of origin coupled with spending time with delinquent adolescents may represent a particularly harmful combination that is related to substance use. Of importance, when we tested for the effect of age on our variables of interest, we found the moderating effect of Vietnamese/Cambodian Identity on the relationship between deviant peer association and substance use was significant only for the oldest youth in our sample. We also tested for gender differences and found that although males reported using more substances overall, gender was not a significant moderator of cultural identity on substance use.

Together, these findings are in line with the “deviancy training model” initially proposed and tested with European American adolescent male samples (Dishion & Owen, 2002). In this model, deviant peers serve to reinforce problem behavior, leading to increases in substance use. The findings from this study extend the deviancy training model by testing the model with a non–European American population and adding cultural identity, gender, and age to the model. The results from this study also support Hahm and colleagues' theory (Hahm et al., 2004) that for Asian immigrant adolescents, deviant peer association plays a critical role in the initiation of substance use. These findings provide a unique contribution to the literature about Asian American immigrants and behavioral problems.

Our study supports the notion that for Vietnamese and Cambodian youth, positive coping skills may serve as a protective factor against the initiation and escalation of substance use during adolescence. Our results suggest, specifically, that coping skills may buffer the negative impact of deviant peer association on substance use. When we examined the effect of age on our variables of interest, we found the relationship between deviant peers and coping was significant only for the oldest youth in our sample. We also examined the impact of gender on our model results and found the moderating effect of coping on the relationship between deviant peer association and substance use was significant only for the males in our sample.

Results for Models 1 and 2 may reflect the general collectivistic tendencies of the Southeast Asian culture, which esteems values that are more social in nature. From this perspective, family solidarity is extremely important. As such, decisions regarding one's behaviors directly reflect on the family's honor and reputation within the community. For those adolescents who identify with the Vietnamese or Cambodian culture, the idea of “losing face” or bringing shame to one's family may also be related to lower levels of substance use. From this perspective, a strong identification with the Vietnamese or Cambodian culture may be a protective factor against the initiation of risky behaviors such as substance use.

A strong identification with the culture of origin may also be associated with protective factors linked with the general collectivistic tendencies of the Southeast Asian culture. Though not directly measured in this study, characteristics of the Southeast Asian family such as a larger extended family made up of grandparents, aunts, and uncles who may live with the nuclear family may serve to protect youth. These family members may also participate in caregiving and thus provide a higher level of adult monitoring.

Given that many Southeast Asian families immigrated to the United States for improved economic opportunities, the importance of economic mobility and, relatedly, academic achievement may be especially stressed in Southeast Asian families with strong cultural identity. These families may be especially motivated to protect their children from the harmful effects of deviant peers, substance use, and academic failure given the importance placed on economic stability. Though not directly measured in this study, these “hidden” factors may also explain our study findings and should be considered in future research.

Finally, these results demonstrate the importance of coping behaviors for protecting adolescents from escalation of substance use during the adolescent years (Johnson & Pandina, 2000; Sigueria et al., 2001; Wills et al., 2001). Coping skills may be an especially important protective factor against the negative association of deviant peer association on substance use for older Cambodian and Vietnamese male adolescents.

## Limitations

Although the study's results are compelling, it is also important to note its limitations. First, a cross-sectional research design was used. Although the linear regression model accounts

for a significant portion of the variance in the outcome variables, it cannot be used to indicate causality. Longitudinal data would have contributed to both the short-term and long-term developmental findings relevant to Southeast Asian immigrant youth. Second, the study data are based on self-reports and are restricted to the limitations inherent to self-reports, such as social desirability. Multimodal data collection methods such as collecting parent data, teacher reports, or videotaped parent–child interactions would have improved the accuracy of these findings. Third, this sample included Cambodian and Vietnamese adolescents residing in a specific geographic region. Characteristics of these groups, such as immigration history and socioeconomic status, may not generalize to other Asian ethnic groups or even to other Vietnamese and Cambodian communities in different parts of the United States. Last, it is important to note that the majority of youth in this study were not using substances. A sample that was actively engaged in substance use may have resulted in different findings.

This study contributes to the limited body of literature about a unique Asian American immigrant population. Overall, the findings support and extend previous research by demonstrating the importance of contextual factors (e.g., cultural identity, deviant peer association, and coping) in contributing to the adjustment of Southeast Asian immigrant youth. It extends the research on Asian American adolescents with its specific focus on Vietnamese and Cambodian adolescents, a population that has been scantily researched.

## Acknowledgments

This research was supported by a grant from the Center on Diversity and Community to the first author and a grant from the National Institute on Drug Abuse to the second author (DA 018374).

## References

Aiken, L.; West, S. Multiple regression: Testing and interpreting interactions. Sage Publications; Newbury Park, CA: 1991.

Allen S, Hiebert B. Stress and coping in adolescents. Canadian Journal of Counseling 1991;25:19–32.

Ary DV, Duncan TE, Biglan A, Metzler CW, Noell JW, Smolkowski K. Development of adolescent problem behavior. Journal of Abnormal Child Psychology 1999;27:141–150. [PubMed: 10400060]

Bankston CL, Zhou M. Valedictorians and delinquents: The bifurcation of Vietnamese American youth. Deviant Behavior: An Interdisciplinary Journal 1997;18:343–364.

Barron RM, Kenny DA. The moderator–mediator variable distinction in social psychological research: Conceptual, strategic, and statistical considerations. Journal of Personality and Social Psychology 1986;51:1173–1182. [PubMed: 3806354]

Clarke GN, Sack WH, Goff B. Three forms of stress in Cambodian adolescent refugees. Journal of Abnormal Child Psychology 1993;21:65–77. [PubMed: 8463505]

Cohen, J. Statistical power analysis for the behavioral sciences. L. Erlbaum Associates; Hillsdale, NJ: 1988.

Cohen, J.; Cohen, P. Applied multiple regression/correlation Analysis for the behavioral sciences. 2nd ed.. Erlbaum; Hillsdale, NJ: 1983.

Cohen, J.; Cohen, C.; West, S.; Aiken, L. Applied multiple regression/correlation analysis for the behavioral sciences. L. Erlbaum Associates; Hillsdale, NJ: 2003.

Diaz-Rico, LT.; Weed, KZ. The Crosscultural, language, and academic development handbook: A complete K–12 reference guide. Allyn & Bacon Publishing; Upper Saddle River, NJ: 1995.

Dise-Lewis JE. The Life Events and Coping Inventory: An assessment of stress in children. Psychosomatic Medicine 1988;50:484–499. [PubMed: 3186892]

Dishion TJ, Owen LD. A longitudinal analysis of friendships and substance use: Bidirectional influence from adolescence to adulthood. Developmental Psychology 2002;28:480–491. [PubMed: 12090479]

Dumont M, Provost MA. Resilience in adolescents: Protective role of social support, coping strategies, self-esteem, and social activities on experience of stress and depression. Journal of Youth and Adolescence 1999;28:343–363.

Hahm HC, Lahiff M, Guterman NB. Asian American adolescents' acculturation, binge drinking, and alcohol and tobacco-using peers. Journal of Community Psychology 2004;32:295–308.

Johnson V, Pandina R. Alcohol problems among a community sample: Longitudinal influences of stress, coping, and gender. Substance Use & Misuse 2000;35:669–689. [PubMed: 10807151]

Lim, KV.; Levenson, M.; Go, CG. Acculturation and delinquency among Cambodian male adolescents in California. In: Lonner, WJ.; Dinnel, DL.; Forgays, DK.; Hayes, SA., editors. Merging past, present, and future in cross-cultural psychology: Selected papers from the Fourteenth International Congress of the International Association for Cross-Cultural Psychology. Swets & Zeitlinger Publishers; Lisse, Netherlands: 1998. p. 231-244.

Marsiglia F, Kulis S, Hecht M. Ethnic labels and ethnic identity as predictors of drug use among middle school students in the southwest. Journal of Research on Adolescence 2001;11:21–48.

Mash, EJ.; Dozois, DJA. Child psychopathology: A developmental-systems perspective. In: Mash, EJ.; Barkley, RA., editors. Child psychopathology. 2nd ed.. Guilford Press; New York: 2003. p. 3-71.

Nagasawa R, Qian Z, Wong P. The theory of segmented assimilation and the adoption of marijuana use and delinquent behavior by Asian Pacific youth. The Sociological Quarterly 2001;42:351–372.

National Council for Crime and Delinquency. Asian and Pacific Islander youth in the California Youth Authority. 2003. Retrieved June 24, 2004, from http://www.api-center.org/recent_reports.html

Nguyen HH, Messe LA, Stollak GE. Toward a more complex understanding of acculturation and adjustment: Cultural involvements and psychosocial functioning in Vietnamese youth. Journal of Cross-Cultural Psychology 1999;30:5–31.

Patterson GR, Yoerger K. Intraindividual growth in covert antisocial behaviour: A necessary precursor to chronic juvenile and adult arrests? Criminal Behaviour & Mental Health 1999;9:24–38.

Rumbaut, RG. Profiles in resilience: Educational achievement and ambition among children of immigrants in Southern California. In: Taylor, RD.; Wang, MC., editors. Resilience across contexts: Family, work, culture, and community. Lawrence Erlbaum Associates; Mahwah, N J: 2000. p. 257-294.

Sigueria L, Diab M, Bodian C, Rolnitzky L. The relationship of stress and coping methods to adolescent marijuana use. Substance Abuse 2001;22:157–166. [PubMed: 12466675]

Smokowski P, Bacallao M. Acculturation and aggression in Latino adolescents: A structural model focusing on cultural risk factors and assets. Journal of Abnormal Child Psychology 2006;34:659–673. [PubMed: 17019628]

Szapocznik, J.; Kurtines, WM. Family psychology and cultural diversity: Opportunities for theory, research, and application. In: Goldberger, NR.; Veroff, JB., editors. The culture and psychology reader. New York University Press; New York: 1993. p. 808-824.

Unger JB, Cruz TB, Rohrbach LA, Ribisl KM, Baezconde-Garbanti L, Chen X, et al. English language use as a risk factor for smoking initiation among Hispanic and Asian American adolescents: Evidence for mediation by tobacco-related beliefs and social norms. Health Psychology 2000;19:403–410. [PubMed: 11007148]

U.S. Bureau of the Census. Statistical abstract of the United States: 2000. U.S. Government Printing Office; Washington, DC: 2000.

U.S. Office of Refugee Resettlement. Annual Report to Congress 1999. U.S. Government Printing Office; Washington, DC: 2002.

Wills TA, Sandy JM, Yaeger AM, Cleary SD, Shinar O. Coping dimensions, life stress, and adolescent substance use: A latent growth analysis. Journal of Abnormal Psychology 2001;110:309–323. [PubMed: 11358025]

Wilson-Portuondo, ML. Immersion: What critical challenges must we face? Distinguishing language difficulties from disabilities in perspectives. MASCD; Wellesley, MA: 2003.

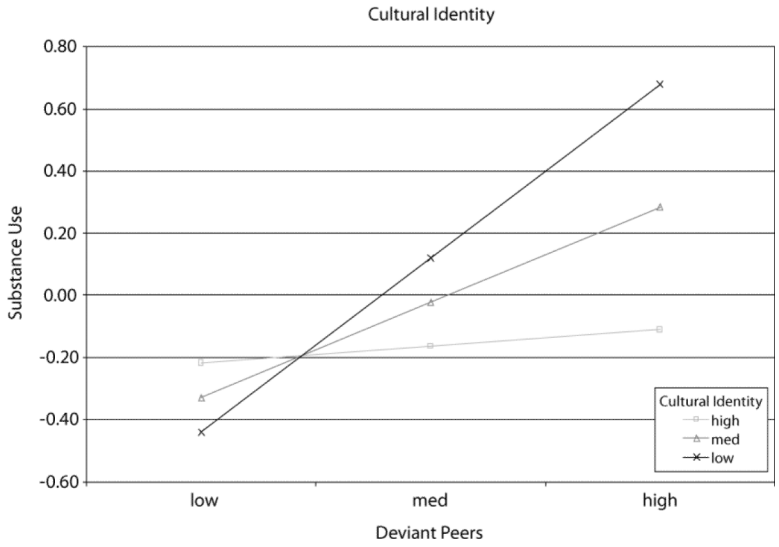


**Figure 1.**
The association of peers on substance use, moderated by cultural identity.

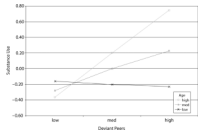

**Figure 2.**
The association of peers, age, and substance use.

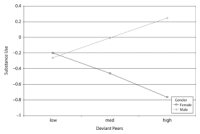


**Figure 3.**
The association of peers, gender and substance use.

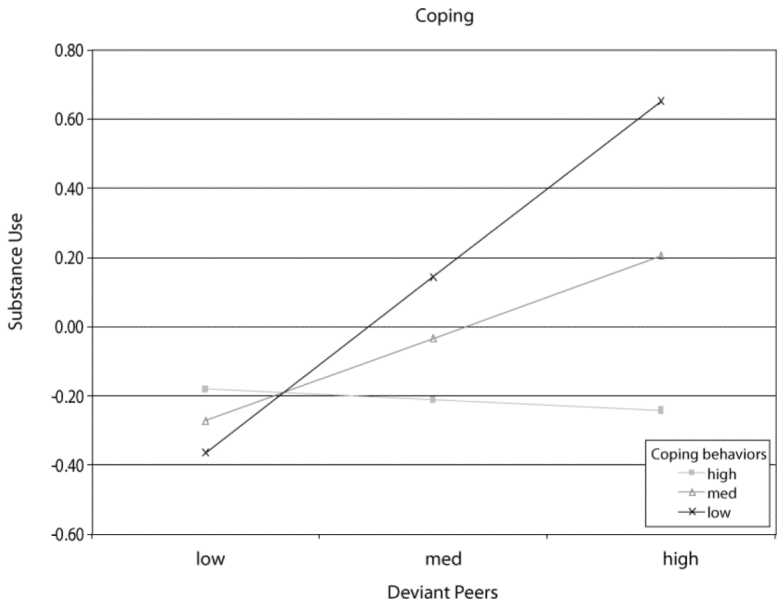


**Figure 4.**
The association of peers on substance use, moderated by coping.

**Table 1**

*Sex Comparisons: Means, Standard Deviations, and* t*-values of Major Variables*

| | Boys (*n* = 44) | | Girls (*n* = 58) | | | |
|---|---|---|---|---|---|---|
| **Variable** | **M** | **SD** | **M** | **SD** | **Group Difference *t*** | **Degrees of Freedom** |
| Vietnamese/Cambodian Cultural Identity | 61.06 | 10.45 | 60.93 | 10.32 | −.25 | 100 |
| Coping behaviors | 46.10 | 14.86 | 59.96 | 14.71 | 4.69*** | 100 |
| Substance use | .24 | 1.19 | −.21 | .31 | 2.71** | 100 |
| Deviant peer association | .77 | 1.32 | .65 | .91 | .5 | 100 |

*Note*. No statistically significant differences were found between Vietnamese and Cambodian youth when comparing the two groups on the variables of interest.

** $p<.01$

*** $p<.001$

**Table 2**

Summary of Hierarchical Regression Analysis for Variables Deviant Peers and Vietnamese/Cambodian Cultural Identity Associated with Substance Use (N = *102)*

| | Model 1 | | | Model 2 | | | Model 3 | | |
|---|---|---|---|---|---|---|---|---|---|
| **Variable** | **B** | **SE B** | **β** | **B** | **SE B** | **β** | **B** | **SE B** | **β** |
| Deviant peers | .24 | .08 | .31** | .26 | .08 | .33** | .31 | .08 | .40** |
| Cultural Identity | | | | −.23 | .11 | −.20* | −.22 | .11 | −.19* |
| Deviant Peers × Cultural Identity | | | | | | | −.40 | .15 | −.26** |
| $R^2$ | .10 | | | .13 | | | .20 | | |
| $F$ for change in $R^2$ | 10.14** | | | 4.30* | | | 7.44** | | |

*Note*. Deviant Peers and Cultural Identity were centered at their means.

* $p<.05$

** $p<.01$.

**Table 3**

Summary of Hierarchical Regression Analysis for Variables Deviant Peers and Coping Associated with Substance Use (N = *102)*

| | Model 1 | | | Model 2 | | | Model 3 | | |
|---|---|---|---|---|---|---|---|---|---|
| **Variable** | **B** | **SE B** | **β** | **B** | **SE B** | **β** | **B** | **SE B** | **β** |
| Deviant peers | .30 | .08 | .35** | .29 | .08 | .33** | .24 | .08 | .28** |
| Coping | | | | −.01 | .01 | −.20* | −.01 | .01 | −.21* |
| Deviant Peers × Coping | | | | | | | −.02 | .01 | −.31** |
| $R^2$ | .12 | | | .16 | | | .25 | | |
| $F$ for change in $R^2$ | 13.25** | | | 4.07* | | | 11.54** | | |

*Note*. Deviant peers and coping were centered at their means.

*$p<.05$

**$p<.01$