Correlates of Gambling Behaviors Among Asian American University Students

by

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ABSTRACT OF THE THESIS

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This study compared rates of gambling between Asian American and White undergraduate college students. No difference was found between the rates of the two groups. It also examined the gambling behavior of Asian American undergraduate college students in relation to a number of factors including alcohol use, sensation seeking, distress, and sex. Although some of these factors have been studied extensively among other ethnic groups, there has been little research conducted on the gambling patterns of Asian American students. Sex was found to be a significant predictor of Asian American student gambling, with males reporting more gambling and more engagement in different types of gambling activities than women. Furthermore, those with a higher tendency to experiment with novel and stimulating activities were also more likely to report more gambling than those who scored lower on novelty-oriented sensation seeking. This study did not find evidence that distress or alcohol use played a significant role in gambling behaviors in Asian American college students. There were, however, limitations to the measures and design that reduced the chances of significant findings on these variables. Future directions for Asian American gambling research are discussed.

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Epidemiological studies have raised concerns about gambling among Asians. In Hong Kong, pathological gambling was found to be the fourth most prevalent diagnostic disorder for males, after tobacco dependence, generalized anxiety disorder, and drug and alcohol substance abuse (Chen et al., 1993). In countries like Canada, Chinese immigrants report higher rates of compulsive gambling than the majority population (CFSGM, 1997). One study found that, within a metropolitan adult Chinese community in Australia, 40.0% of respondents reported that they have gambled, while 4.3% of males and 1.6% of females reported pathological gambling (Blaszcynski, Huynh, Dumlao, & Farrell, 1998). A study conducted on South Asian refugees in the US found that more than half of the respondents gambled within two weeks of the survey (Petry, Armentano, Kuoch, Norinth, & Smith, 2003). Another study showed a significant positive association with having an Asian heritage and gambling among university students (Lesieur et al., 1991).

Some studies within the United States report a lower rate of gambling among Asian Americans than Whites (National Research Council, 1999), but others claim that the reported increase of pathological gambling among Asian communities internationally raises concern in the western hemisphere (Papineau, 2005). In general, knowledge on Asian American's specific gambling patterns is scant. Usually, the percentage of Asian Americans in gambling studies is so small that no specific statistical analysis can be conducted. It is possible that there is a lack of detailed studies on Asian American gambling because of a number of reasons, such as challenges in recruiting a minority

population and reluctance of participants to report negative events because of cultural values.

It is difficult to make detailed statements about the gambling patterns of Asian Americans because most gambling studies in the US feature predominantly White samples, with some Blacks and "non-Whites." Furthermore, gambling studies conducted on Asian Americans are often limited because of their usually small sample sizes, the under-representation of females and the lack of data on the different gambling venues they frequent. Nevertheless, the few studies we do have focusing primarily on Asian Americans and the prevalence studies elsewhere in the world suggest that pathological gambling may be an area of concern for Asians, and it is important to take a deeper look at the gambling behaviors of Asian Americans.

In contrast, there is a steady stream of literature investigating the prevalence of gambling among the general (mostly White) population. With the increase of availability of legalized gambling, the gambling rates throughout the country have increased (James, 1999). It is estimated that two thirds of adult Americans have engaged in some form of gambling. Around 5% of gamblers engage in pathological or problem gambling (Shaffer & Hall, 2001), and the estimates based on DSM-IV reported that 1-3% of adults in the United States meet criteria for pathological gambling (American Psychiatric Association, 1994). In addition, nearly half of college students report gambling (LaBrie, Shaffer, LaPlante, & Wechsler, 2003).

It has only been recently that researchers have begun to investigate recreational gambling because most past studies on gambling have focused exclusively on the pathological and problem gambling population. Recent studies have found that most

university students who gamble do not meet criteria for pathological gambling and are unlikely to suffer adverse consequences from their gambling (Tanasornnarong, Jackson, & Thomas, 2004; Williams, Connolly, Wood, & Nowatzki, 2006). Although recreational gamblers may not appear to experience any immediate negative consequences of gambling, it has been suggested that recreational gambling after an extended amount of time can pave the way to problem gambling (Coman, Burrows, & Evans, 1997). As a result, researchers have begun reporting prevalence rates for recreational gambling among non-clinical samples, predominantly among college students.

Undergraduate college students participate in a variety of recreational gambling activities including sports betting, casino slots gambling, Texas Hold 'Em or other forms of card game-based gambling via web sites, which are especially increasing in popularity among young adults. One study, in a college with easy access to casinos, found that 6% of a convenience sample of students gambled in a casino at least once a week (10.3% of males vs. 3.4% of females). Sixteen percent of those who gambled at least once or more often in a casino ever in their lives were below the legal age of gambling in the state (Knapp, Rasmussen, & Niaghi, 2003). In Minnesota, a similar study on undergraduates found a reported rate of 12% for gambling at least weekly or daily (Winters, Bengston, Door, & Stinchfield, 1998). The Collegiate Athletic Association also found that, among Division I student-athletes, 25% stated that had bet money on various college sporting events, and 3.7% had gambled on a game they played (Cullen & Latessa, 1996). A meta-analytic review of studies on gambling among college students in both the United States and Canada found the national prevalence of students who gamble at least once a week or more during the school year was 2.6% (Shaffer & Hall, 2001). In addition, 4.67% of

students experienced "clinically meaningful problems of disordered gambling" (Shaffer, Hall, & Vander Bilt, 1999). Although the overall rates of pathological gambling may be low for college students, various limitations in prevalence studies (e.g., the use of cross-sectional versus longitudinal data) make it difficult to rule out the development of pathological gambling in later adulthood stemming from less problematic gambling during young adulthood.

Although prevalence rates are useful in delinearing the general occurrence of gambling (both recreational and pathological) among specific ethnic groups, researchers also have investigated potential factors that are associated with gambling. Sex has often been found to be a strong factor in predicting gambling activity, as the prevalence rates for gambling differ substantially across the sexes. Males are more likely to be gamblers than females (LaBrie et al., 2003), and tend to gamble at a higher frequency than females, although it appears that the gap between the two sexes is decreasing as gambling becomes an increasingly acceptable social activity (Gerstein et al., 1999).

In addition to demographic factors such as sex, researchers have investigated various psychosocial factors that account for individual differences in gambling. Sensation seeking is viewed as one important factor that may correlate with the frequency of gambling, as well as types of gambling. Sensation seeking (SS), a term coined by Marvin Zuckerman, is used to describe a "need for varied, novel and complex sensations and experiences, and the willingness to take physical and social risks for the sake of such experience" (1979, p. 10).

High sensation seekers tend to underestimate risk in situations and place a higher emphasis on arousal than those who score lower on sensation seeking. As such, those

who score high on sensation seeking have been shown to more frequently engage in risky behaviors and seek out exciting and novel situations than those who do not. High sensation seekers have been found to be more likely to engage in activities such as dangerous sports like skydiving (Zuckerman, 1983), driving recklessly (Zuckerman & Neeb, 1980), and alcohol and drug use (Zuckerman, 1987). It has been proposed that gambling may help high sensation seekers maintain an optimal level of stimulation (Zuckerman, 1994). Outside of gambling treatment facilities, SS has been shown to correlate with frequency of gambling and general interest in gambling activities (McDaniel & Zuckerman, 2003). The Canadian Foundation of Compulsive Gambling (1993) reports that a majority of adults who experience gambling problems reported that they gamble because of the excitement they experience while gambling. Kuley and Jacobs (1988) found that problem gamblers scored higher than social gamblers in overall SS ratings. Anderson and Brown (1984) reported that excitement is the most often cited reason by gamblers for why they gamble. Those who scored high on SS also reported greater interest in gambling than their moderate and low SS counterparts. Sensation seeking has also been found to correlate significantly and positively with various aspects of gambling such as bet size, loss of control, and expenditures on betting (Coventry & Brown, 1993). Furthermore, Coventry and Brown also found that high sensation seekers also were more likely to engage in a significantly greater number of different forms of gambling than low sensation seekers. Moreover, they discovered that SS varied directly with self-reported arousal and loss of control among gamblers.

Nevertheless, not all studies have found a relationship between gambling and sensation seeking. In fact, some studies have found a significant positive relationship

between sensation seeking scores and gambling frequency (Kuley & Jacobs, 1998), while others have not (Ladouceur & Mayrand, 1986). Some studies have even found gamblers to score even lower on SS than non-gamblers (Dickerson, Hinchy, & Fabre, 1987). Recently, however, researchers have begun to distinguish gambling by types (i.e., casino slots vs. racetrack gambling) and have found that SS correlates with some forms of gambling, such as sports betting, but not to others, such as casino slots (Coventry & Brown, 1993). Researchers have proposed that some forms of gambling may elicit different feelings of novelty and excitement than others, and may even offer feelings of familiarity and relaxation instead of stimulation (Coventry & Brown, 1993). For instance, an older adult sitting in front of a casino slot machine for hours engaging in the repetitive action of pulling the lever may not be seeking the same level of sensory stimulation as someone who is betting at a racetrack. Regardless, most studies on SS and gambling have demonstrated a positive correlation between SS scores and gambling frequency. Researchers have noted that previous studies that have failed to demonstrate an association between SS and gambling did not control for other factors, such as sex and age (Breen & Zuckerman, 1999). In addition, other methodological limitations such as lack of statistical power may account for the inconsistent findings regarding SS and gambling (Zuckerman, 1994).

It is also possible that SS should be separated into various components, such as intensity-seeking (looking for stimulation) and novelty-seeking (looking for a new experience). A few studies in the past have investigated how different forms of sensation seeking may affect behavior, such as disinhibition, experience-seeking, thrill and adventure seeking, and boredom susceptibility (Zuckerman, 1983). For instance,

impulsivity and boredom susceptibility were found to be associated differently with risky driving behavior among a sample of college students (Dahlen, Martin, Ragan, & Kuhlman, 2005). From this perspective, it can be understood how gamblers may score high on intensity-seeking but not novelty-seeking. In fact, Nower, Derevensky, and Gupta (2004) found that among junior college students, intensity-seeking scores correlated with different levels of gambling severity (from "nongamblers" to "probable pathological gamblers"), but novelty-seeking scores did not. They also found that sensation seeking was a strong predictor of problem gambling behavior in male junior college students. Sensation seeking appears then to be an interesting factor which may account for gambling behavior in some individuals.

Aside from psychosocial factors such as sensation seeking, behavioral correlates such as alcohol and drug use have also been shown to associate with gambling behavior (Scherrer et al., 2007; Smart & Ferris, 1994). As mentioned before, SS can play into this model because those who drink and gamble continue to do so to prolong the heightened feelings of excitement and stimulation. Giacopassi, Stitt, and Vandiver (1998) proposed that gambling behavior may occur because alcohol acts as a disinhibitor. Those using alcohol while gambling may lose their ordinary sense of prudence and financial restraints, making it easier for them to gain 'confidence' and experience additional enjoyment in risk taking. Some researchers have pointed to the use of alcohol as a "gambling tonic" for casino patrons by encouraging drinkers to gamble more because of lowered inhibition (Popkin, 1994), but the relationship between alcohol and gambling extends beyond the casino environment. In one study, compared to other lifestyle and social factors (such as number of friends, being in clubs/associations), alcohol use was

the strongest individual factor correlated to adult problem gambling (Gerdner & Svensson, 2003). In their national survey, Welte, Barnes, Wieczorek, Tidwell, and Parker (2001) found a strong correlation between gambling and alcohol use. This finding has been replicated among college students as well (LaBrie et al., 2003). In their national survey, Welte, Barnes, Wieczorek, Tidwell, and Parker (2001) found a strong correlation between gambling and alcohol use. Rosenthal and Lorenz (1992) reported that nearly 50% of all pathological gamblers are either currently experiencing alcohol or illicit drug use problems or had previous experience with substance use problems. Conversely, one-fifth of those with substance abuse report gambling problems. A similar prevalence was found in a drug abuse treatment center, which led the researchers to propose alcohol and drug abuse as potential indicators of an increased likelihood of having a gambling problem (Lesieur, Blume, & Zoppa, 1986).

In one study of undergraduates in Tennessee and Nevada, one-quarter of those surveyed stated that they frequently or always drank while they gamble. Those who drank when they gamble were more likely to visit casinos than those who do not, spend more time gambling, make higher bets, and subsequently were more likely to lose more than they could afford at a casino when betting (Giacopassi et al., 1998). Among college students, those who gamble were less likely to abstain from alcohol consumption, more likely to use illicit drugs, and were also more likely to binge drink, and have such drinking lead to unprotected sex (LaBrie et al., 2003). Alcohol use then appears to a strong risk factor for gambling among college students.

The association between gambling and substance use, however, may be moderated by gender, with the association stronger in males than females (Potenza et al.,

2002). Males were also twice as likely as females to drink while gambling (Giacopassi et al., 1998).

Although psychosocial and external behaviors are often correlated with gambling activities, researchers also point to the potential role emotions play in the initiation and continuation of gambling behavior. Gambling may serve as a distracter for some students from the stresses of everyday life and as an activity to alleviate boredom (Getty, Watson, & Frisch, 2000; McCormick, 1994). Moreover, within a college sample, male non-gamblers tended to use more active, task-oriented, stress coping strategies than male gamblers. It is possible that those who find school to be an especially stressful experience may turn to gambling as "something else to do" or to draw their own attention away from the problems they are facing socially and academically.

Gambling has also been found to positively correlate with psychopathology. Pathological gamblers tended to have higher rates of mood and anxiety disorders than non-pathological gamblers (Dannon, Lowengrub, Aizer, & Kotler, 2006; Kim, Grant, Eckert, Faris, & Hartman, 2006) as well as higher rates of physical ailments such as fatigue and insomnia (Larimer, Lostutter, & Neighbors, 2006). Adolescent and young adult gamblers were more likely than their non-gambling peers to endorse symptoms of depression (Clarke, 2003; Lynch, Maciejewski, & Potenza, 2004). Although the body of research on the link between feelings of distress and gambling behavior is limited, current research suggests positive correlations between the experience of negative emotions and likelihood of gambling.

The factors above have been found to be correlates of gambling among dominantly White populations. Few studies,however, have examined the correlates of

gambling specifically for smaller ethnic/racial groups. The few gambling studies on Asians in the US have focused mostly on reporting prevalence rates rather than actually investigating the types of gambling Asians engage in and psychosocial factors that are associated with gambling. As such, more research is needed on gambling frequencies and patterns for Asian American students, and on the correlates of their gambling. Some correlates, such as sex, have been shown as a factor associated with gambling. Asian males appear to be at greater risk for pathological gambling than Asian females (Clarke et al., 2006). For other correlates, such as sensation seeking, however, there are little to virtually no detailed data. On the other hand, there is a substantial amount of literature on alcohol use among Asian Americans. Overall, it appears Asian Americans have a relatively low rate of alcohol and drug use in comparison to other populations in the US. The National Survey of Drug Use and Health (formerly called National Household Survey on Drug Abuse, or NHSDA) found that Chinese Americans were one of the groups with the lowest percentage lifetime alcohol use (69.6%) compared to Hispanics (ranging from 74.1% to 82.0% among Mexican, Puerto Rican, Central/South Americans, and Cuban), Blacks (74.8%), American Indians/Alaska native (80.2%), and Whites (86.7%). Nationally, Chinese Americans have a lower prevalence of drinking compared to other Asian groups (Filipino, Japanese, and Korean) with the exception of Asian Indians and Vietnamese (Substance Abuse and Mental Health Services Administration, 2004). Other studies have also found similar rate comparisons among college students, where Asian American university students were five times less likely to drink than White students (O'Hare, 1995).

Factors affecting alcohol and drug use among Asian Americans have also been studied. Acculturation, for example, may lead to increased frequency of alcohol use (Hahm, Lahiff, & Guterman, 2004). Sex differences have often been found in alcohol research in the majority population (Johnson, Richter, Kleber, McLellan, & Carise, 2005; Kashdan, Vetter, & Collins, 2005; Wilke, Siebert, Delva, Smith, & Howell, 2005). Indeed, sex differences in drinking have been reported in Chinese Americans and Asian Americans in general as well, with women generally drinking less than men (Colón & Wuollet, 1994; Hendershot, MacPherson, Myers, Garr, & Wall, 2005; Weatherspoon, Danko, & Johnson, 1994). Although there is a solid foundation of research on alcohol and drug use among Asian Americans, studies on how substance use affects gambling behavior among this ethnic group are still relatively few. As such, it will be interesting to see if factors associated with gambling among White populations will also be associated with gambling among Asian Americans.

It is important to note that there may be cultural values that affect the research on gambling and alcohol and drug use among Asians. Help seeking attitudes (such as reluctance to seek outside help and reliance on family members to handle all problems), stigma surrounding substance abuse and mental illness, cultural emphasis with certain ethnic groups on the avoidance of bringing shame upon one's family through one's actions, non-acknowledgement of pathological gambling as a problem, perceived lack of access to help, a high value on self-sufficiency, and other causes of apprehension towards researchers and mental health scientists may contribute to the relatively low rates of reported use among Asian Americans (Fung & Wong, 2007; Papineau, 2005).

Current Study

In short, research on gambling prevalence among Asian American college students has shown mixed findings, and it is still unclear whether this population gambles at a higher or lower rate than White students. Researchers have also studied a number of variables that may impact gambling behaviors ranging from biological factors (e.g., sex) to psychosocial variables (e.g., sensation seeking). Many of the studies, however, were conducted predominantly on White males and on pathological gamblers and it is unknown how these factors may be correlated with gambling in Asian Americans. Overall, while there is an increasing availability of literature on Asian Americans' alcohol and drug use, there is little research on gambling among this population. A study on a non-clinical sample of young adult Asian American gamblers and factors that are proven correlates of gambling within the White population hopefully will shed more light on the factors that influence recreational gambling and ultimately pave the way for a more detailed understanding of the development of problem gambling from recreational gambling in Asian Americans.

This exploratory study seeks to investigate whether gambling rates are different for Asian American college students than White college students. This study also seeks to investigate the relative contribution of sensation seeking, distress, and alcohol use on gambling behaviors among Asian American college students at a mid-Atlantic public university. It is predicted that Asian Americans students gamble at comparable rates with White college students, and that distress, sensation seeking, and alcohol use correlate positively with gambling frequency in Asian American university students.

Method

Participants

Participants were 372 Asian American and White students between the ages of 18-25 at a mid-Atlantic university. These students participated in a larger study where 522 students from many backgrounds were surveyed between February 2005 and May 2006. Of those students, 88 identified themselves as Asian/Pacific Islander students and 284 identified themselves as White/Caucasian students. Ten Asian American participants' data from the original pool of 522 participants were not included in the analyses because of substantial missing data or the participants were older than 25 years of age. Sixteen White participants' data were not included because those participants were older than 25 years of age Attrition analyses revealed no significant difference on any of the study variables between excluded Asian American or White participants' data and data of the students who were included in the analyses.

The demographic characteristics of the sample are presented in Table 1. Fifty-nine percent of Asian American students were female ($N = 41$) and 41% were males ($N = 36$). Sophomore, junior, senior, and fifth-year students made up 80.7% of the sample. The mean age of the Asian American participants was 19.58 years. Most Asian American students lived on campus in a residence hall or dorm room (55.2%), and most were not a member of a fraternity or sorority (92.0%). For White students, 62% were female ($N = 176$) and 38% were males ($N = 108$). Freshman students made up 4.9% of the sample. The mean age of the White participants was 20.09 years. Most White students lived on campus in a residence hall or dorm room (46.4%), and most were not a member of a fraternity or sorority (85.8%). When demographic characteristics were compared between Asian American and Whites students, only one significant difference was found.

White students in the sample were more likely to be advanced in school years than Asian American students, χ^2 (5, N = 372) = 22.85, p = .000).

Procedure

Data were collected as part of the Student-Athlete Project conducted by the Rutgers Transdisciplinary Drug Abuse Prevention Research Center (TPRC) (Yusko, 2006). The project studies various aspects of the lives of both undergraduate students and student athletes in the university. The Student-Athlete Survey is a comprehensive questionnaire containing questions on alcohol and drug use, gambling patterns, and other factors such as stressors, drinking motives, alcohol and drug problems, and sensation seeking. During the spring 2005 semester, students (N = 241) were recruited either through introductory communications (N=164) or psychology courses (N=77). The survey was administered to 164 mostly sophomore, junior, and senior students in an Introductory Communications Theory course. Other students were recruited through the undergraduate psychology program (N = 77). The survey was administered again to students in the fall of 2005 (N = 159) and spring of 2006 (N = 122) through two communication courses offered during that school year, resulting in a total of 522 participants.

Students were administered the survey by trained research assistants. The assistants explained the research and reviewed the attached information form on the survey, which lists eligibility requirements, study procedure, potential risks and benefits, freedom to withdraw from participation, and anonymity of participants' responses in the survey. Before the surveys were distributed, students were given another opportunity to ask questions and voluntary participation was again emphasized. Students who chose not

to participate at that point were excused before survey administration. As the surveys were distributed, students were also informed that they were free to skip any questions they did not feel comfortable answering, to terminate the survey at any time with no penalty, and to choose to not have their responses used.

For their participation, psychology students were compensated with RPU credits – one RPU for one half-hour of participation. Students who participated from the communication classes were able to sign up for a lottery to win one of two $50 American Express gift cards and an MP3 player. The professor of the course also offered extra credit to those who participated in the survey. The contact sheets for the lotteries were collected and stored separately from the surveys to preserve response anonymity, and students were informed of this procedure as a way of ensuring their survey responses remain anonymous. In addition, the students were told that the data were protected by a Federal Certificate of Confidentiality.

Measures

Sex. Sex was assessed by a single item asking for participants' birth sex (1 = male, 0 = female).

School year. School year was assessed by one item. Participants were asked to identify their class standing (1 = first year, 2 = sophomore, 3 = junior, 4 = senior, 5 = fifth year or above senior).

Race. Race was assessed by asking for participants' ethnic background (1 = Asian/Pacific Islander, 2= Black, 3 = Hispanic/Latino, 4 = Native American/American Indian, 5 = White/Caucasian, 6 = Other/Multi-ethnic). For this study, only Whites and Asian/Pacific Islanders were included.

Alcoho/ use. Alcohol use was measured by frequency of use. Participants were asked how many times in the past year they drank (Pandina, Labouvie, & White, 1984) using an answer range of 0 to 7 (0 = I did not drink at all, 1 = less than once a month, 2 = about once a month, 3 = 2 to 3 times a month, 4 = 1 or 2 times a week, 5 = 3 or 4 times a week, 6 = 5 or 6 times a week, 7 = once a day or more).

Distressed mood. The Profile of Mood States (POMS) Short-Form (McNair, Lorr, & Droppleman, 1992) was used in this questionnaire to assess current distress and mood. The POMS Short-Form is an adjective rating form that describes a variety of different moods states participants may be feeling. The POMS uses a Likert scale of 0-4, with 0 being "not at all" to 4 being "extremely." These items are categorized into six distinct factors, each with five items: confusion-bewilderment (C), fatigue-inertia (F), vigor-activity (V), anger-hostility (A), tension-anxiety (T), and depression-dejection (D). Scores from the items are also used to tally the Total Mood Disturbance (TMD) score. The TMD is calculated by subtracting the vigor-activity score from the summed total score of all the other subscales. The POMS has been used extensively in college populations, and its subscales have good internal consistency (McNair, Lorr, & Droppleman, 1992). The TMD score is used as the distress variable and has good internal consistency in this study (TMD = .93).

Novelty and Impulsivity Sensation Seeking. Sensation seeking (SS) was measured by the Schafer, Blanchard, and Fals-Stewart's (1994) Sensation Seeking Scale. The scale contains nine items asking for the participants' likelihood of engaging in activities such as "trying new things just for excitement" and "getting a kick out of doing things that are

a little dangerous," on a scale of 1 (never) to 5 (always). For the sample used in this study, this scale has good internal consistency, with a Cronbach's alpha of .90.

Principal component analysis with varimax rotation was conducted on the nine items of the sensation seeking scale for Asian American students to determine with separate sensation seeking factors could be used for regression analyses. Two factors with loadings above the Eigenvalue of 1 were extracted. After rotation, the first factor accounted for 41.31% of the variance and the second factor accounted for 28%. Table 2 displays the items and factor loadings for each, with loadings less than .5 omitted for clarity. The first factor appears to measure novelty sensation seeking, or the participants' tendency to seek out new sensations. The second factor appears to measure impulsivity-oriented sensation seeking, or the propensity of the participant to engage in activities that elevate his/her level of excitement, often on the "spur of the moment." Factor scores of each item derived from these two factors were used in the regression analyses in place of the overall sensation seeking score. Cronbach's alpha was also computed for each subscale indicating an alpha of .81 for the novelty subscale and .90 for the impulsivity subscale.

Gambling frequency. Gambling activity was assessed with questions based on Petr, Paskus, and Dunkle's (2003) national study on collegiate sports wagering. Fourteen questions on frequency of engagement in different forms of gambling, such as playing slots and internet casino usage, were included in the questionnaire. Participants' responses were scored on a scale of 1 to 5 (1 = no participation at all, 2 = less than once a month, 3 = at least once a month, 4 = at least once a week, 5 = daily). These items were tallied for a total frequency score. Because of high skewness in the data, the mean

frequency score was computed for each participant and log-transformed to bring the skewness to acceptable levels.

Gambling prevalence. Gambling prevalence was also assessed with questions based on Petr, Paskus, and Dunkle's (2003) national study on collegiate sports wagering. One dichotomous variable was created to assess whether or not a participant has gambled in the past year (0 = no participation at all, 1 = any level of participation in any number of activities).

Number of different gambling activities. Because of the low variability in the responses for the items on the gambling scale, a new variable was created measuring the number of different gambling activities the participant engaged in during the past year, with values ranging from 0 to 1 (0 = no participation at all, 1 = 1 to 2 different gambling activities, 2 = 3 to 4 different gambling activities, 3 = 5 to 6 different gambling activities, 4 = 7 to 8 different gambling activities, 5 = 9 to 10 different gambling activities, 6 = 11 to 12 different gambling activities, 7 = 13 to 14 different gambling activities). This new variable had acceptable skewness and kurtosis.

Results

Preliminary analyses

Table 3 presents the percentage of Asian and White gamblers for each of the gambling dependent variables. A majority of Asian American (67.5%) and White (71.3%) students reported gambling within the past year. Of the Asian American students, 59.7% reported trying only two or less different gambling activities, 35.1% reported trying three to six activities, and 5.2% reported trying seven to ten activities this past year. On average, Asian American students gamble "at least once a month" (*M* =

2.83, *SD* = 3.35). Of all fourteen gambling activities, wagering on cards/board games with family or friends (55.3%) and wagering on games of personal skill (37.6%) were the most popular among Asian Americans who gambled in the past year.

Of the White participants, 63.8% reported trying two or less different gambling activities, 26.8% reported trying three to six activities, 8.9% reported trying seven to ten activities, and .8% reported trying eleven to fourteen different activities in the last year. White students on average gamble "at least once a month" to "at least once a week" (*M* = 3.40, *SD* = 4.5). Of all fourteen gambling activities, wagering on cards/board game with family or friends (50.7%) and wagering on horse/dog races (49.1%) were the most popular among Whites who gambled in the last year.

Compared to White students, Asian American students were less likely to play slots or electronic poker machines, χ^2 (1, N = 361) = 7.92, p = .001). They were also less likely to wager on horse or dog races than White students, χ^2 (1, N = 361) = 3.85, p = .033). Differences between the two races for the other gambling items were not significant.

Because school year was found to be significantly different between Asian American and White students, chi-square analyses were conducted for school year and the dependent variables to assess the necessity of controlling for school year in the regression analyses. School year was not found to significantly affect any of the dependent variables. T-tests and Chi-square analyses revealed no significant difference between the Asian American and White students in gambling prevalence, gambling frequency, or number of different gambling activites. The rest of the analyses focus only on the Asian American sample.

Correlational Analyses

The means, standard deviations, and intercorrelations of all independent and dependent variables are shown in Table 4 for the Asian American subsample. Correlations between study variables indicated a low risk of collinearity. Significant correlations were found for sex and number of gambling activities ($r = .41$, $p < .001$), sex and gambling prevalence ($r = .32$, $p < .01$), novelty sensation seeking and number of gambling activities ($r = .39$, $p = .001$), novelty sensation seeking and gambling prevalence ($r = .26$, $p < .05$), and alcohol use and novelty sensation seeking ($r = .35$, $p < .01$). Other correlations were low and were not statistically significant.

Regression Analyses

Multiple and logistic regression analyses were conducted to assess whether the independent variables – sex, novelty sensation seeking, impulsive sensation seeking, alcohol use, and emotional distress – significantly predicted gambling prevalence, frequency, and number of different gambling activities. The logistic regression analysis indicates, that when all independent variables are considered together, they significantly predict whether or not an Asian American student gambles, $\chi^2 = 15.50$, $df = 5$, $N = 81$, $p = .008$. Table 5 presents the odds ratios, which suggest that the odds of estimating correctly who gambles improve by 452 % if one knows students' sex and by 113 % if one knows students' novelty sensation seeking.

The same model also significantly predicts Asian American students' number of different gambling activities, $R^2 = .25$, $F(1, 72) = 4.90$, $p = .001$ (see Table 6). The results indicate that sex and novelty sensation seeking each were significant predictors of number of different gambling activities, $\beta = .34$, $t = 3.25$, $p = .002$; $\beta = .35$, $t = 3.22$, $p =$

.002, respectively. Males were more likely to report trying a greater number of gambling activities. Novelty sensation seeking scores also positively predicted number of different gambling activities. The other dependent variables (impulsivity sensation seeking, alcohol use, distressed mood) were not significant predictors.

The model is not significant for gambling frequency, $R^2 = .04$, $F(1, 70) = .57$, $p = .721$ (results not shown).

To test if sex moderated any relationship between an independent variable and the two significantly predicted dependent variables, interaction terms were created for sex x novelty SS, sex x impulse SS, sex x alcohol use, and sex x distress. These terms were incorporated into a second step of the respective regression analyses. Independent variables were mean-centered to avoid nonessential collinearity in the interaction terms (Cohen, Cohen, West, & Aiken, 2003). The R^2 change for Step 2 analysis with gambling prevalence was not significant, $\chi^2 = 7.27$, $df = 8$, $N = 81$, $p = .508$. It was also not significant for number of gambling activities, $R^2 = .31$, $F(1, 66) = .55$, $p = .698$.

Discussion

There was no significant difference between rates, frequency, or extent of gambling behaviors between Asian American and White college students. For both racial/ethnic groups more than two thirds of the students had gambled in the last year. Given the concerns that recreational gambling could lead to problematic gambling in the general college student population (Coman, Burrows, & Evans, 1997), these findings suggest that gambling among Asian American college students should also be a concern.

In this study, novelty sensation seeking and sex each significantly predicted gambling in an Asian American university student sample. Sex appears to the single

most powerful predictor of gambling in Asian American college students, with males reporting a significantly higher number of different gambling activities than females. This is consistent with research on college students in general (Winters et al., 1998). Contrary to what some researchers propose (Gerstein et al., 1999), the gender gap in gambling still appears to have a strong influence on the likelihood of engagement in gambling activities, at least among Asian American students.

The present findings on sensation seeking are consistent with some previous findings in the general population and not consistent with others. As mentioned previously, some studies have found a positive relationship between sensation seeking and gambling (Kuley & Jacobs, 1998), while others did not find any evidence supporting such an association (Ladouceur & Mayrand, 1986). The reasons for the SS association are unclear but merit further study. It may be that the availability of gambling activities via the internet allows college students a direct, easy, and immediately affordable access to novelty (versus stimulating and more physical activities that require more money and effort to initiate). Furthermore, one of our dependent variables – the number of *different* gambling activities a participant has tried in the past year – may have inadvertently made it easier to detect a positive association between novelty sensation seeking and gambling, versus other forms of sensation seeking and gambling. A student who is more prone to seek out new experiences would be more likely to try a wider range of different gambling activities than a student who does not get pleasure mainly from trying out new activities. Nevertheless, it is interesting that results of the current study find no evidence in support of previous research showing an association between impulsivity and gambling (Nower et al., 2004). Since this study used a sensation seeking scale that has not been used

previously in gambling research, however, the lack of findings in regards to impulsivity sensation seeking should be interpreted with caution.

It is interesting that the results of the study did not support earlier studies demonstrating the association between distress and gambling behavior. One possible explanation for this lack of findings may be the limitations within the distress measures. That is, the distress measure was measured as a current state, while gambling was reported over a 12 month period of time. For example, a participant who genuinely reports feeling energetic while completing the questionnaire may still feel anxious and depressed over the span of the entire week. Since the POMS simply asks for the moods of the participants as they are experiencing "right now," there are no data collected from the POMS that would indicate extended periods of distress.

This study also did not find an association between alcohol use and gambling, which has been shown in other studies (Scherrer et al., 2007; Smart & Ferris, 1994). While there is no single clear reason why this study did not find alcohol use to be a significant predictor, there are some possible explanations. For one, students may not have accurately recalled their frequency of alcohol use in the past year. Asian American students may also under-report alcohol use to researchers because of cultural values and fear of stigma (Erickson D'Avanzo, 1997). In addition, alcohol may impact gambling behavior in Asian American college students after habitual or prolonged periods of use, which may only be assessed by a longitudinal study tracking Asian Americans from young adulthood to later years in life. A cross-sectional study such as this one is limited in assessing the progressive and long-term impact of alcohol on gambling behavior.

Although sex and novelty sensation seeking predicted gambling prevalence and number of gambling activities, they did not predict gambling frequency. One possible explanation for the lack of findings with this frequency measure may be the generally low mean frequency scores for each participant. For instance, while many participants reported wagering on cards and board games with family and friends, none reported playing slots or electronic poker machines. These frequencies were averaged together to give a total mean frequency score. Accordingly, the gambling frequency measure may not have been very sensitive to individual differences in gambling behavior. Each gambling activity was given the same weight in computing the overall mean frequency, even though some of the activities (e.g. gambling at a casino) take much more time and resources than others (e.g. buying a lottery ticket). An intensity measure that is more sensitive to each gambling items may have offered different findings than the one used for this study.

Another possibly relevant limitation in the measures is that the students were not asked their families' country (or countries) of origin. An essential issue of note is the heterogeneity of Asian American subgroups. There are marked differences in the drinking consumption of different Asian groups, such as Chinese, Korean, Japanese, Indian, Filipino, and many others. Korean Americans have been shown to have a different drinking pattern than that of Chinese Americans in studies (Luczak et al., 2001; Weatherspoon et al., 1994), and perception of substance use problems vary between Asian American communities. Vietnamese respondents, for instance, tend to report knowing Asians with a drinking problem more than do Chinese or Indian subjects, and other differences in perception of characteristics of Asian Americans with drinking

problems, and help-seeking patterns were also found (Lee et al., 2002). A study on gambling participation among South East Asian refugees in the United States found that 59% of its participants met criteria for pathological gambling, while a study in Australia on problem gambling within a Chinese community found a lifetime prevalence estimate for pathological gambling to be 2.9%. Therefore, one limitation of this study is its inability to consider Asian ethnic groups separately. While many intriguing findings have been reported in studies on Asian Americans as one group, extra information and distinct differences between ethnicity is lost in such studies, especially considering that the category of Asian American is comprised of more than at least 50 smaller ethnic groups. It is impossible to tell from such studies whether their results are skewed by the behavior of one group. Regardless, studies on Asian Americans have provided much needed knowledge in a variety of areas. Nevertheless, it is important to interpret these results with caution, especially when generalizing the results of such studies to a specific Asian group or as representative of Asian Americans as a whole.

Lastly, it is probable that the independent variables may affect different types of gambling differently, such as sensation seeking impacting various forms of gambling in different ways (Coventry & Brown, 1993). Separating gambling into different categories such as sports-oriented gambling and game-oriented gambling may offer different findings than what is reported in this study. Nevertheless, despite these limitations, this study is one of the first to investigate gambling behavior of Asian American college students and whether factors previously identified as predictors of gambling for White populations apply to Asian Americans as well.

While the reported increase of pathological gambling among Asian communities internationally is indeed a concern (Papineau, 2005), and the age of initiation for partaking in gambling activities appears to be decreasing with time, it appears that gambling is still not a major activity for Asian American students. A majority of students in our study (59.3%) reported trying only two or less different gambling activities in the past year, and most students at other universities who gamble do not meet criteria for pathological gambling (Tanasornnarong et al., 2004; Williams et al., 2006). Williams and colleagues (2006) also found, however, that Asian students are at higher risk for pathological gambling than other ethnicities. Other researchers also argue that cultural values, fear of stigma, and concern over losing face may lead Asian participants to under-report the level to which they gamble (Blaszczynski, Huynh, Damlao, & Farrell, 1998). Traditional views on money, fortune and luck, entertainment, superstition, and family values may also influence gambling behavior in Asians in particular (Tanasornnarong et al., 2004). For example, Walker (1992) found that while Asian blackjack players conceptualize luck as a characteristic that comes and goes in waves, bingo players tend to view luck as a personal trait that can either be used to its full potential or wasted depending on the person's skills and actions. Other factors, such as acculturation, may moderate the impact of these traditional beliefs on gambling.

It remains to be seen whether or not this trend of low reported gambling among Asian American university students will continue or change as time passes and specific forms of gambling (such as poker and other card games) become more mainstream and popular recreational activities. There is much room for further research on Asian Americans and gambling, specifically on differences in gambling behavior among Asian

sub-groups, the role of cultural values and personal perception of luck and destiny on gambling among Asians, and risk factors that may lead one from recreational to pathological gambling.

Conclusion

This study is one of relatively few studies that have investigated gambling behaviors of Asian American undergraduate college students compared to White college students. The rates of gambling for Asian Americans are not found to be significantly different than White students'; over half of the Asian American students surveyed have gambled within the past year. Out of the independent variables, sex was found to be a significant predictor of gambling, with males reporting more engagement in different gambling activities than women. Among these Asian American students, those with a higher tendency to experiment with novel and stimulating activities were also more likely to report more gambling than those who scored lower on novelty-oriented sensation seeking. This study did not find evidence that other factors, such as distress and alcohol use, played a significant role in accounting for gambling behaviors in young Asian American adults. There were, however, limitations to the measures used in this study that may have reduced the chances of significant findings in these variables.

There are ample reasons for further research in gambling, especially when looking at patterns of gambling in minority groups. An interesting variable to consider may be a person's acculturation and degree of identification with a particular ethnic group. Acculturation has been shown to impact rates of alcohol and drug use (Hahm, LaHiff, & Guterman, 2003; Hendershot et al., 2005) and possibly could affect gambling. With some Asian cultures emphasizing the role of luck and destiny in gambling, it may be

interesting to examine whether or not adherence to these traditional cultural beliefs impact gambling behaviors in Asian Americans.

With a larger sample of Asian Americans, the factors examined in this study may be reinvestigated to determine more specifically their impact on gambling. The potential influence of a person's perceived stress and distress continues to be an intriguing factor to look at and merits more study. While this study has begun to explore the relationship of various social and psychological factors to gambling in Asian Americans, there are still further questions to explore.

References

American Psychiatric Association. (1994). *Diagnostic and Statistical Manual of Mental Disorders* (4th ed.). Washington, DC.

Anderson, G., & Brown, R. I. F. (1984). Real and laboratory gambling, sensation seeking and arousal. *British Journal of Psychology, 75,* 401-441.

Blaszczynski, A., Huynh, S., Dumlao, V. J., & Farrell, E. (1998). Problem gambling within a Chinese speaking community. *Journal of Gambling Studies, 14,* 359-380.

Breen, R. B., & Zuckerman, M. (1999). 'Chasing' in gambling behavior: Personality and cognitive determinants. *Personality and Individual Differences, 27*, 1097-1111.

Canadian Foundation on Compulsive Gambling (Ontario). (1994). *An exploration of the prevalence and pathological gambling behaviors among adolescents in Ontario.* Toronto: Insight Canada Research.

Chen, C-N., Wong, J., Lee, N., Chan-Ho, M-W, & et al. (1993). The Shatin Community Mental Health Survey in Hong Kong: II. Major findings. *Archives of General Psychiatry, 50,* 125-133.

CFSGM. (1997). *Gambling and problem gambling among Chinese adults in Quebec: An exploratory study.* Montreal: SFCGM.

Clarke, D. (2003). Gambling and the trait of addiction in a sample of New Zealand university students. *New Zealand Journal of Psychology, 32,* 39-48.

Clarke, D., Abbott, M., Tse, S., Townsend, S., King, P., & Manaia, W. (2006). Gender, age, ethnic and occupational associations with pathological gambling in a New Zealand urban sample. *New Zealand Journal of Psychology, 35,* 84-91.

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.

Colón, I., & Wuollet, C. A. (1994). Homeland, gender and Chinese drinking. *Journal of Addictive Diseases, 13*, 59-67.

Coventry, K. R., & Brown, R. I. (1993). Sensation seeking, gambling and gambling addictions. *Addiction, 88*, 541-554

Cullen, F. T., & Latessa, E. J. (1996). The extent and sources of NCAA rule infractions: A national self-report study of student athletes. *A Report to the National Collegiate Athletic Association*. Overland Park, Kansas.

Dahlen, E. R., Martin, R. C., Ragan, K., & Kuhlman, M. M. (2005). Driving anger, sensation seeking, impulsiveness, and boredom proneness in the prediction of unsafe driving. *Accident Analysis & Prevention, 37,* 341-348.

Dannon, P. N., Lowengrub, K., Aizer, A., & Kotler, M. Pathological gambling: Comorbid psychiatric diagnoses in patients and their families. *Israel Journal of Psychiatry and Related Sciences, 43*, 88-92.

Desai, R. A., Maciejewski, P. K., Pantalon, M. V., & Potenza, M. N. (2006). Gender differences among recreational gamblers: Association with the frequency of alcohol use. *Psychology of Addictive Behaviors*, *20*, 145-153.

Dickerson, M., Hinchy, J., & Fabre, J. (1987). Chasing, arousal and sensation seeking in off-course gamblers. *British Journal of Addiction, 82,* 673-680.

Erickson D'Avanzo, C. (1997). Southeast Asians: Asian-Pacific Americans at risk for substance misuse. *Substance Use & Misuse, 32*, 829-848.

Fung, K. & Wong, Y-L. R. (2007). Factors influencing attitudes towards seeking professional help among East and Southeast Asian immigrant and refugee women. *International Journal of Social Psychiatry, 53,* 216-231.

Gerdner, A., & Svensson, K. (2003). Predictors of gambling problems among male adolescents. *International Journal of Social Welfare, 12,* 182-192.

Gerstein, D., Hoffmann, J., Larison, C., Engelman, L., Murphy, S., Palmer, A., Chuchro, L., Toce, M., Johnson, R., Buie, T., Hill, M. A., Volberg, R., Hawood, H., Tucker, A., Christiansen, E., Cummings, W., & Sinclair, S. (1999). *Gambling impact and behavior study.* Retrieved from http://www.norc.uchicago.edu/new/gamb-fin.htm.

Getty, H. A., Watson, J., & Frisch, G. R. (2000). A comparison of depression and styles of coping in male and female GA members and controls. *Journal of Gambling Studies, 16*, 377-391.

Giacopassi, D., Stitt, B. G., & Vandiver, M. (1998). An analysis of the relationship of alcohol to casino gambling among college students. *Journal of Gambling Studies*, *14,* 135-149.

Hahm, H. C., LaHiff, M., & Guterman, N. B. (2003). Acculturation and parental attachment in Asian-American adolescents' alcohol use. *Journal of Adolescent Health, 33,* 119-129.

Hahm, H. C., LaHiff, M., & Guterman, N. B. (2004). Asian American adolescents' acculturation, binge drinking, and alcohol- and tobacco-using peers. *Journal of Community Psychology, 32,* 295-308.

Hendershot, C. S., MacPherson, L., Myers, M. G., Garr, L. G., & Wall, T. L. (2005). Psychosocial, cultural and genetic influences on alcohol use in Asian American youth. *Journal of Studies on Alcohol, 66,* 185-195.

James, K. (1999). *National Gambling Impact Study Commission: Final Report to Congress.* Retrieved from http://www.ncfamily.org/specialngisc.html.

Johnson, P. B., Richter, L., Kleber, H. D., McLellan, A. T., & Carise, D. (2005). Telescoping of drinking-related behaviors: Gender, racial/ethnic, and age comparisons. *Substance Use & Misuse, 40*, 1139-1151.

Kashdan, T. B., Vetter, C. J., & Collins, R. Lorraine. (2005). Substance use in young adults: Associations with personality and gender. *Addictive Behavior, 30*, 259-269.

Kim, S. W., Grant, J. E., Eckert, E. D., Faris, P. L., Hartman, B. K. (2006). Pathological gambling and mood disorders: Clinical associations and treatment implications. *Journal of Affective Disorders, 92*, 109-116.

Knapp, T. J., Rasmussen, C. A., & Niaghi, Z. B. (2003). Win one for the students: Sports wagering by college students. *College Student Journal, 37,* 60-62.

Kuley, N. B., & Jacobs, D. F. (1988). The relationship between dissociative-like experiences and sensation seeking among social and problem gamblers. *Journal of Gambling Behavior, 4,* 197-207.

LaBrie, R. A., Shaffer, H. J., LaPlante, D. A., & Wechsler, H. (2003). Correlates of college student gambling in the United States. *Journal of American College Health, 52*, 53-62.

Ladouceur, R., & Mayrand, M. (1986). Characteristiques psychologiques de la prise de risqué monetaire des joueurs et des non-joueurs a la roulette. *International Journal of Psychology, 21,* 433-443.

Larimer, M. E., Lostutter, T. W., & Neighbors, C. (2006). Gambling in primary care patients: why should we care and what can we do about it? *General Hospital Psychiatry, 28,* 89-91.

Lee, M. Y., Law, F. M., Eo, E., & Oliver, E. (2002). Perception of substance use problems in Asian American communities by Chinese, Indian and Vietnamese American youth. *Journal of Ethnic & Cultural Diversity in Social Work, 11,* 159-189.

Lesieur, H. R., Blume, S. B., & Zoppa, R. M. (1986). Alcoholism, drug abuse, and gambling. *Alcoholism: Clinical and Experimental Research, 10,* 33-38.

Lesieur, H. R., Cross, J., Frank, M., Welch, M., White, C. M., Rubenstein, G., Moseley, M., & Mark, M. (1991). Gambling and pathological gambling among university students. *Addictive Behaviors, 16,* 517-527.

Luczak, S. E., Wall, T. L., Shea, S. H., & Byun, S. M. (2001). Binge drinking in Chinese, Korean, and White college students: Genetic and ethnic group differences. *Psychology of Addictive Behaviors, 15,* 306-309.

Lynch, W. J., Maciejewski, P. K., & Potenza, M. N. (2004). Psychiatric correlates of gambling in adolescents and young adults grouped by age at gambling onset. *Archives of General Psychiatry, 11,* 1116-1122.

McCormick, R. A. (1994). The importance of coping skill enhancement in the treatment of the pathological gambler. *Journal of Gambling Studies, 10,* 77-86.

McDaniel, S. R., & Zuckerman, M. (2003). The relationship of impulsive sensation seeking and gender to interest and participation in gambling activities. *Personality and Individual Differences, 35*, 1385-1400.

McNair, D. M., Lorr, M., & Droppleman, L. F. (1992). *Manual for the Profile of Mood States (POMS), Revised.* San Diego, CA: Educational and Industrial Testing Service.

Nower, L., Derevensky, J. L., & Gupta, R. (2004). The relationship of impulsivity, sensation seeking, coping, and substance use in youth gamblers. *Psychology of Addictive Behaviors, 18*, 49-55.

O'Hare, T. (1995). Differences in Asian and White drinking: Consumption level, drinking contexts, and expectancies. *Addictive Behaviors, 20,* 261-266.

Pandina, R., Labouvie, E. W., & White, H. R. (1984). Potential contributions of the life span developmental approach to the study of adolescent alcohol and drug use: The Rutgers Health and Human Development Project, a working model. *Journal of Drug Issues, 14,* 253-268.

Papineau, E. (2005). Pathological gambling in Montreal's Chinese community: An anthropological perspective. *Journal of Gambling Studies, 21,* 157-178.

Petr, T., Paskus, T.S. & Dunkle, J.B. (2003). *NCAA national study on collegiate sports wagering and associated behaviors.* Retrieved September 14, 2007 from National Collegiate Athletic Association, http://www.ncaa.org/library/research/sports_wagering/2003/2003_sports_wagering_study.pdf

Petry, N. M., Armentano, C., Kuoch, T., Norinth, T., & Smith, L. (2003). Gambling participation and problems among South East Asian refugees to the United States. *Psychiatric Services, 54,* 1142-1148.

Popkin, J. (1994, March 14). Tricks of the trade. *U. S. News & World Report, 161,* 48-52.

Potenza, M. N., Maciejewski, P. K., Desai, R. A., Caldarone, B., Lynch, W., Cavus, I, et al. (2002). Characteristics of gamblers: Health measures ad gender differences. *Drug and Alcohol Dependence, 66(S1),* S141.

Rosenthal, R., & Lorenz, V. (1992). The pathological gambler as criminal offender. *Clinical Forensic Psychiatry, 15,* 647-660.

Schafer, J., Blanchard, L., & Fals-Stewart, W. (1994). Drug use and risky sexual behavior. *Psychology of Addictive Behaviors, 8,* 3-7.

Scherrer, J. F., Slutske, W. S., Xian, H., Waterman, B., Shah, K. R., Volberg, R., & Eisen, S. A. (2007). Factors associated with pathological gambling at 10-year follow-up in a national sample of middle-aged men. *Addiction, 102,* 970-978.

Shaffer, H. J., & Hall, M. N. (2001). Updating and refining prevalence estimates of disordered gambling behavior in the United States and Canada. *Canadian Journal of Public Health,* 92, 168-172.

Shaffer, H. J., Hall, M. N., & Vander Bilt, J. (1999). Estimating the prevalence of disordered gambling behavior in the United States and Canada: A research synthesis. *American Journal of Public Health, 89*, 1369-1376.

Smart, R. G., & Ferris, J. (1996). Alcohol, drugs and gambling in the Ontario adult population, 1994. *The Canadian Journal of Psychiatry, 41,* 36-45.

Substance Abuse and Mental Health Services Administration. (2004). *National survey of drug use and health.* Washington, DC: Government Printing Office.

Tanasornnarong, N., Jackson, A. C., & Thomas, S. A. (2004). Gambling among young Thai people in Melbourne, Australia: An exploratory study. *International Gambling Studies, 4,* 189-203.

Walker, M. (1992). *The Psychology of Gambling.* Oxford: Pergamon Press.

Weatherspoon, A. J., Danko, G. P., & Johnson, R. C. (1994). Alcohol consumption and use norms among Chinese Americans and Korean Americans. *Journal of Studies on Alcohol, 55,* 203-206.

Welte, J., Barnes, G., Wieczorek, W., Tidwell, M-C., & Parker, J. (2001). Alcohol and gambling pathology among U. S. adults: Prevalence, demographic patterns and comorbidity. *Journal of Studies on Alcohol, 62*, 706-712.

Wilke, D. J., Siebert, D. C., Delva, J., Smith, M. P., & Howell, R. L. (2005). Gender differences in predicting high-risk drinking among undergraduate students. *Journal of Drug Education, 35*, 79-94.

Williams, R. J., Connolly, D., Wood, R. T., & Nowatzki, N. (2006). Gambling and problem gambling in a sample of university students. *Journal of Gambling Issues, 16.* Retrieved from http://www.camh.net/egambling/issue16/issue16/jgi_16_williams.html.

Winters, K. C., Bengston, P., Door, D., & Stinchfield, R. (1998). Prevalence and risk factors of problem gambling among college students. *Psychology of Addictive Behaviors, 12,* 127-135.

Yusko, D. A. (2006). *Collegiate athletes and substance use: Developing a prevention program.* Unpublished doctoral dissertation, Rutgers, the State University of New Jersey, New Brunswick, NJ.

Zuckerman, M. (1979). *Sensation Seeking: Beyond the Optimal Level of Arousal.* Hillsdale, NJ: Lawrence Erblaum Associates.

Zuckerman, M. (1983a). Experience and desire: A new format for sensation seeking scales. *Journal of Psychopathology and Behavioral Assessment, 6,* 101-114.

Zuckerman, M. (1983b). Sensation seeking and sports. *Personality and Individual Differences, 4,* 285-292.

Zuckerman, M. (1987). Is sensation seeking a predisposing trait for alcoholism? In Gottheil, E., Druley, KI. A., Skoloda, T. E., & Weinstein, S. (Eds.), *Stress and Addiction* (pp. 283-301). New York: Bruner/Mazel.

Zuckerman, M. (1994). *Behavioral expressions and biosocial bases of sensation seeking.* Cambridge, England: Cambridge University Press.

Zuckerman, M., & Neeb, M. (1980). Demographic influences in sensation seeking and expression of sensation seeking in religion, smoking, and driving habits. *Personality and Individual Differences, 1,* 197-206.

Table 1

Student Demographics (in percents)

Variable	*Asian Americans*	*Whites*	*Total*
Race (N = 372)	23.7	76.3	–
Sex			
N	88	284	372
Male	41.4	38.0	38.8
Female	58.6	62.0	61.2
School Year *			
N	88	284	372
1st year	20.5	4.9	8.6
Sophomore	43.2	46.1	45.4
Junior	29.5	40.8	38.2
Senior	5.7	5.7	5.6
Fifth year or above	1.1	2.5	2.2
Residence			
N	87	280	367
Fraternity/Sorority	1.2	2.1	1.9
Off-Campus	26.4	36.1	33.8
On-Campus	55.2	46.4	48.5
With Parents	17.2	15.4	15.8
Greek affiliation			
N	87	282	369
Yes	8.0	15.2	12.7
No	92.0	85.8	87.3
Alcohol use past year			
N	88	282	370
Not at all	17.0	9.9	8.1
Less than 1/month	17.0	10.6	12.2
About 1/month	9.1	9.9	9.7
2/3x a month	23.9	21.7	22.2
1/2x a week	23.9	39.8	35.9
3/4x a week	8.0	11.3	10.5
5/6x a week	1.1	1.4	1.4

Chi-squares * $p < .001$

Table 2

Factor Loadings for Rotated Factors in Sensation Seeking Scale (N = 86)

Item	*Factor Loading*	
	1	*2*
1. Novelty Sensation Seeking (SS)		
Like to experience new and different sensations	.88	
Try new things just for excitement	.88	
Go for thrills in life when you get a chance	.85	
Look for a new experience	.80	
Get a kick out of doing things that are a little dangerous	.59	
2. Impulsivity Sensation Seeking (SS)		
Act quickly		.82
Act on the spur of the moment without stopping to think		.81
Test yourself every now and then by doing something a little risky		.67
Think that your actions are risky		.64

Note. Loadings <.50 are omitted.

Table 3

Endorsement of Gambling Items by Race (in percents)

Gambling variable	*Asian Americans*	*Whites*	*Total*
Any gambling	67.5	71.3	70.5
Wagering on cards/board games with family or friends	55.3	50.7	51.9
Wagering on table games at commercial card parlor/casino	15.3	22.1	20.4
Wagering on games of personal skill	37.6	29.5	31.6
Wagering on stock/commodities market	3.6	5.5	5.0
Wagering on commercial bingo	8.2	5.4	6.1
Wagering on dice/played craps	11.8	9.0	9.6
Wagered on internet casino/other games	8.3	12.3	11.3
Bought lottery tickets	11.0	16.7	15.3
Played slots/electronic poker machines***	0	8.7	6.6
Engaged in other types of gambling	2.4	2.5	2.5
Wagering on sports cards, football pools or parlays	2.4	3.3	3.0
Wagering on horse or dog races*	37.3	49.1	46.3
Wagering on intercollegiate games with bookie	16.7	22.0	20.7
Wagering on intercollegiate games with off-campus bookie	20.2	17.0	17.7
# of gambling activities	$M = 1.40$	$M = 1.23$	$M = 1.36$

Chi-squares * $p < .05$, ** $p < .01$, *** $p < .001$

Table 4

Means, Standard Deviations, Alphas, and Intercorrelations for the Independent and Dependent Variables (N =78)

Variable	*M*	*SD*	α	*A*	*B*	*C*	*D*	*E*
A. Sex	–	–	–	–				
B. Novelty SS	.25	1.08	.805	.08				
C. Impulsivity SS	.25	1.08	.900	.11	.00			
D. Alcohol use	3.44	2.80	–	.14	.35**	.17		
E. Distress	25.60	11.02	.931	-.13	-.03	-.00	-.11	
F. Gambling prevalence	.67	.47	–	.32**	.26*	.00	.02	-.04
G. # of activities	1.19	.48	.748	.41***	.39**	.03	.08	-.09

Note. POMS TMD = Profile of Mood States – Total Mood Disturbance.
* $p < .05$. ** $p < .01$ *** $p < .001$.

Table 5

Results of LogisticRegression Analysis Predicting Whether Not Asian American University Students Gamble (N = 81)

Variable	*β*	*SE*	*Odds ratio*	*p*
Sex	1.71	.61	5.52	.005
Novelty SS	.75	.31	2.13	.015
Impulsivity SS	.07	.27	1.07	.81
Alcohol use	-.16	.17	.85	.32
Distress	-.01	.02	1.0	.50

$\chi^2 = 15.50$, $df = 5$, $N = 81$, $p = .008$

Table 6

Results of Regression Analysis on Asian American University Students' Number of Different Gambling Activities (N = 78)

Variable	*B*	*SE B*	*β*	*t*	*p*
Sex	.73	.23	.34	3.25	.002
Novelty SS	.41	.13	.35	3.22	.002
Impulsivity SS	-.01	.12	-.01	-.10	.923
Alcohol and Marijuana Use	-.04	.04	-.09	-.88	.381
Distress	-.00	.01	-.05	-.45	.654

$R^2 = .25$, $F(1, 72) = 4.90$, $p = .001$