

# Sexual Behaviors, Extroversion, and Alcohol Use Among College Students

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## Abstract

*High risk sexual behaviors have been documented among college students and have been shown to be associated with an increase in other risk-taking behaviors. In particular, alcohol use has been found to be correlated with increased risky sexual behaviors among adolescent and adult populations. The present study examined the relation between sexual risk-taking and alcohol use among college students. Results indicated that individuals reporting an increase in risky sexual behaviors had greater alcohol involvement as demonstrated by an increased number of days drinking, a larger typical amount consumed on drinking days, and a greater number of binge drinking days. The implications of these findings support a model of prevention that includes an emphasis on protective factors (i.e., celibacy, condom use) as well as interventions to reduce alcohol use.*

## Introduction

**A**cquired Immune Deficiency Syndrome (AIDS) is the leading cause of death among Americans between the ages of 25-44. The average incubation period between infection and onset of physical symptoms is up to 10 years (Centers for Disease Control, 1996), thus, it is possible that many of these individuals acquired the Human Immunodeficiency Virus (HIV) infection during adolescence (Butcher, Manning, & O'Neal, 1991). For a certain percentage of individuals, this period of late adolescence/young adulthood includes years at college. Late adolescence, in general, is considered a time of exploration and development, particularly as individuals make the transition from high school to college. As adolescents leave home, they are presented with new opportunities which allow them to experiment with a variety of behaviors, including sexual intercourse, drug use, and alcohol consumption.

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Increased sexual risk-taking has been well documented among adolescents. Research focusing on this population has found that adolescents are more likely to participate in high-risk sexual activities, including unprotected intercourse, when they drink alcohol than when they do not (Biglan et al., 1990; Cooper, Pierce, & Huselid, 1994; Desiderato, & Crawford, 1995). Meilman (1993) found that 35% of college students, since coming to college, have engaged in sexual activities in which alcohol was involved. The use of alcohol and other substances among adolescents has been found to be associated with increased risky sexual behavior on the occasion of first ever intercourse as well as with the most recent partner (Cooper et al., 1994). College students with multiple sexual partners are more likely to drink prior to engaging in sexual activity than are monogamous students (Desiderato & Crawford, 1995). And, in situations involving new partners, women are more likely to engage in sexual intercourse with someone they met in a situation involving alcohol (i.e., a bar) than in a situation not involving alcohol (i.e., class) (Testa & Collins, 1997).

The tendency for young adults to experiment with alcohol has been reflected in the prevalence of drinking on college campuses. Such an atmosphere may provide individuals with more social opportunities to drink, and college students are more likely to consume larger amounts of alcohol than young adults not in college (Prendergast, 1994). In fact, approximately 85% of college students surveyed reported using alcohol at least once in the previous year (Prendergast, 1994), and 44% overall were classified as binge drinkers (i.e., 5 or more drinks for men and 4 or more drinks for women per drinking occasion) (Wechsler, Dowdall, Davenport, & Castillo, 1995). Approximately half of college students are moderate to heavy drinkers (i.e., range from 3 drinks/week to 16 drinks/2 weeks) (O'Hare, 1990). Forty-five percent acknowledge drinking alcohol on a regular basis (Brown, Baumann, Smith, & Etheridge, 1997). Such high levels of consumption have been shown to influence the behaviors of individuals, resulting in various alcohol-related consequences (Brown et al., 1997; Carey, 1995; O'Hare, 1990; Smith, McKinney, & Brown, 1997). For example, adolescents who consume large amounts of alcohol are more likely to engage in a variety of high-risk behaviors, including vandalism, physical assault, and getting into trouble with campus police (Wechsler, Davenport, Dowdall, Moeykens, & Castillo, 1994). Drinking among adolescents is highly correlated with increased use of other substances, including illicit drugs and the use of tobacco (Kim, Larimer, Walker, & Marlatt, 1997). A relation between alcohol consumption and risky driving behaviors has also been demonstrated. Students who drink heavily are more likely to report driving after drinking

(Prendergast, 1994) and driving at faster speeds (McMillen & Wells-Parker, 1987) than those who drink lower amounts of alcohol.

Attempts to link alcohol use and risk-taking have focused on personality style. For example, the personality style of extroversion is comprised of various factors of sociability and impulsiveness (Eysenck & Eysenck, 1978). The extroverted individual is one who desires excitement, enjoys parties and being sociable, and wants to remain busy by moving and doing things (Eysenck & Eysenck, 1994). It has been posited that the extrovert is insensitive to low levels of stimulation but becomes reactive to high levels of stimulation (Zuckerman, Buchsbaum, & Murphy, 1980). Extroverts may search out and put themselves in social situations in order to achieve stimulation. Thus, being more "sociable," extroverts may place themselves in situations where they can more readily consume alcohol, such as a bar or party, than introverts. In fact, extroversion has been found to be associated with higher levels of alcohol use than introversion (Clemons & Brown, 1998). Given the links between risk-taking and high levels of alcohol use and between heavy alcohol consumption and extroversion, it may be that extroverts are more likely to engage in various types of high risk behaviors and to consume large quantities of alcohol than introverts.

The primary purpose of this study was to examine the relation between sexual risk-taking and alcohol use among college students. The secondary purpose was to determine whether the personality trait of extroversion mediated sexual risk-taking and alcohol use. Existing research has established a connection between risky sexual behaviors and alcohol consumption, and one can postulate that individuals reporting an increase in risky sexual behaviors also demonstrate greater alcohol involvement. Certainly one could assume a reverse association: that individuals with greater alcohol involvement demonstrate more sexual risk-taking. However, heavy drinking is associated with a variety of risks and it is possible that sexual risk-taking is just one of many types of risk. By examining a continuum of sexual risk-taking one may identify patterns of behaviors that place individuals at risk for HIV, AIDS, and other Sexually Transmitted Diseases (STDs) and thus, develop prevention efforts to reduce the risk of STD transmission among college students.

## **Method**

### **Participants**

Participants included 304 undergraduate psychology students from ten sections of Introductory Psychology classes. Students participated in this

research as partial fulfillment of course requirements and received research credit for their participation.

## Procedures

Participants were tested in a group format of 10-15 individuals. Following informed consent, a self-administered questionnaire packet was given to each participant. To ensure the confidentiality of responses, each questionnaire packet was coded with a number. Participants completed the questionnaires in approximately 30 minutes. The researcher was available to answer questions throughout and after the testing period.

## Measures

*Demographics.* In addition to basic demographic information, participants were asked to report current grade point average and use of tobacco. Sixty percent of the current sample ( $N=304$ ) were female. The mean age reported was  $20.03 \pm 3.36$ . Eighty-seven percent of the students were freshmen or sophomores, with an average GPA of  $2.99 \pm .63$ . The race of the sample was comprised as follows: 82% Caucasian, 7% African-American, 4% Hispanic, 3% Asian, 4% American Indian, and less than 1% were self-identified as "Other." Male and female students were compared on all demographic variables.

*Alcohol Use.* Participants reported their quantity and frequency of alcohol use during the previous 30 days. Questions included: "During the past 30 days, on how many days did you have any beverage containing alcohol?"; "During the past 30 days, on days when you did drink alcohol, how many drinks did you usually have?"; "During the past 30 days, on how many days did you drink 4 or more (for women)/5 or more (for men) drinks?" Quantity-frequency measures have been shown to demonstrate high reliability across subject populations (Babor, Stephens, & Marlatt, 1987).

*Extroversion.* The Eysenck Personality Inventory-Revised (EPQ-R) (Eysenck, Eysenck, & Barrett, 1985) was used to assess participants' extroversion. This is a 48-item, self-report questionnaire measuring extroversion and other personality dimension; for this study, only the extroversion sub-scale was used. Extroversion is a personality factor that consists of sociability and impulsiveness (Eysenck & Eysenck, 1994). The test-retest reliability of this instrument has been reported as between .61 and .88 (Eysenck et al., 1985). The alpha coefficient for the extroversion scale has been reported as .84 for males and as .85 for females (Eysenck & Eysenck, 1994).

*Sexual History.* A Sexual History Questionnaire was developed from existing literature to assess individuals' sexual history (Biglan et al., 1990; Leigh, 1990; Temple & Leigh, 1992). Students gave information concerning their overall sexual history as well as information pertaining to their most recent sexual experience. Questions about general sexual behavior included whether they had ever had: a sexual intercourse experience, unprotected or unwanted intercourse, or a sexual encounter with someone they did not know well. The response format for these questions was dichotomous (yes/no). Regarding most recent sexual behavior, participants were asked to report what form of protection was used (i.e., condom, spermicide, none), to what extent the sexual encounter was expected (using a Likert scale from 1 [completely expected] to 5 [completely unexpected]), partner intimacy (how long they had known their partner and whether the individual was their primary partner, an occasional partner, or a new partner), whether alcohol had been consumed 4 hours or less prior to the event by either the respondent or their partner.

### **Sexual Risk Index**

Participants were classified into three sexual risk-taking groups: celibate, low sexual risk-taker, or high sexual risk-taker. Group membership was based on a risk index constructed from the questions of the sexual history questionnaire. Of the three groups, celibate individuals did not have sexual intercourse ( $N=82$ ), low sexual risk-takers had sexual intercourse but did not endorse sexual intercourse without a condom or with someone not known well ( $N=55$ ), and high sexual risk-takers had sexual intercourse without a condom and intercourse with someone not known well ( $N=78$ ). Six individuals were unable to be classified using these criteria and were dropped from further analyses.

### **Data Analysis**

Multiple analysis of variance tests (MANOVA) were used to compare risk-taking groups across all drinking variables and on the extroversion scale of the EPQ-R. Univariate follow-up tests were conducted to determine specific differences among the three groups (i.e., ANOVA with follow-up post hoc tests). Chi-square tests were used to determine the differences between condom use and alcohol at last sexual encounter and alcohol use at last sexual encounter between new and primary partners. Chi-square tests were also used to compare extroverts and introverts on condom use and sex with someone not known well.

## Results

### Sexual risk-taking

Seventy-three percent of the entire sample reported having sexual intercourse at least one time. Sexually active individuals reported an average number of  $1.88 \pm 1.75$  partners in the previous year. Of those engaging in sexual activity ( $N=221$ ), 67% acknowledge having unprotected intercourse and 43% reported engaging in intercourse with an unfamiliar partner. As well, 31% (67% female) of these sexually active individuals reported having sex when they did not want to at some point in their sexual history.

### Low vs. high sexual risk-takers

An analysis of variance test of alcohol use by risk-taking group revealed significant differences among the groups on total number of days drinking during the previous month,  $F(2,213)=24.35$ ,  $p<.001$ , average number of drinks consumed per drinking day,  $F(2,211)=12.79$ ,  $p<.001$ , and total number of binge drinking days,  $F(2,212)=18.41$ ,  $p<.001$ . Post hoc analyses indicated that high sexual risk-takers had greater alcohol involvement across all three variables when compared to low sexual risk-takers and celibate individuals (see Table 1). No significant differences were found between low sexual risk-takers and those who reported never having sex.

**Table 1**  
**Mean (Standard Deviation) Values**  
**on Alcohol Use for Sexual Risk Groups**

	<b>Celibate (N=82)</b>	<b>Low Sexual Risk-takers (N=55)</b>	<b>High Sexual Risk-takers (N=78)</b>	<b>F-value</b>
Days drank past 30 days	2.42(3.48)	3.58(4.88)	8.64(8.17)	24.35***
Drinks per drinking day	2.21(2.85)	2.75(3.68)	5.05(4.42)	12.79***
Days binge drinking/30 days	1.18(2.63)	1.85(3.26)	5.44(6.77)	18.41***

\*\*\* $p<.001$

## **Alcohol use and sexual risk-taking**

The use of alcohol during the most recent sexual encounter did not appear to be related to condom use. However, when comparing alcohol use and partner intimacy, 43% of recent sexual encounters with new partners involved the use of alcohol as compared to 26% of recent sexual encounters with primary partners ( $\chi^2[2]=7.035, p=.03$ ).

## **Extroversion and sexual risk-taking**

No significant differences were found when comparing the three risk-taking groups on extroversion. As well, there were no significant differences on extroversion when comparing individuals who used a condom regularly to those who did not. Finally, there was no significant difference on extroversion for individuals who acknowledged versus those who reported not having sex with someone not known well.

## **Discussion**

The intent of this study was to clarify the association between risky sexual behavior and alcohol use among college students. Results demonstrated that, as hypothesized, high sexual risk-takers drank more frequently, consumed larger quantities of alcohol per occasion, and binged more frequently than low sexual risk-takers. Such data are consistent with other evidence that suggests young adults are more likely to engage in other problem behaviors when they engage in high-risk sexual behaviors (Biglan et al., 1990). Risky sexual behavior has been found to be an indicator of alcohol use, particularly among college students (Butcher et al., 1991; Graves, 1995). In the present study, additional support of the association between risky sexual behavior and alcohol use was provided by the finding that low sexual risk-takers did not differ from individuals not engaging in sexual intercourse with respect to their alcohol use. In this sample, increased sexual risk factors were associated with increased alcohol use. Thus, when designing intervention and prevention programs, it is important to consider that alcohol consumption may be a factor that accompanies sexual risk-taking. Secondary prevention programs directed towards college students might be more effective if the focus is on reduction of high risk behaviors related to both sexual behaviors (i.e., increasing condom use, emphasizing celibacy, and avoidance of sexual situations that permit intimate sexual contact) and alcohol use behaviors.

The results of this study failed to demonstrate an association between condom use and alcohol consumption; approximately one half of the participants reported not using a condom. The lack of condom use for so many of the students might be attributable to several factors. First, the period of late adolescence is often accompanied by feelings of infallibility



and invincibility, which can create a false sense of security where the individual feels that it is unnecessary to use a condom for protection. Second, serial monogamy is a common relationship pattern among young adults, in which one partner is faithful to another for a period of time (Simkins, 1995). Such a relationship pattern may also promote a false sense of security and protection, where the individual perceives using a condom for protection as unnecessary. Finally, young adults often have limited experience in sexual situations, including the ability to communicate about sexual matters such as birth control, prevention of STDs, and number of recent partners.

In this sample, extroversion did not appear to be related to sexual risk-taking in general, nor to condom use in particular. This is surprising because research has consistently indicated that extroversion is related to heavy drinking and one would assume, given the association between drinking and sexual risks, that the same associations would occur. Clearly, for this sample, extroversion was not an indicator of increased sexual risk.

Consistent with other research (Graves, 1995; Temple & Leigh, 1992), the results of this study demonstrated an association between partner intimacy and alcohol use in the most recent sexual encounter. The data indicated that recent sexual situations with new partners were more likely to involve the use of alcohol than recent sexual situations with primary partners. Given that alcohol is often used to facilitate social interactions in situations in which an individual is anxious or apprehensive, the increased alcohol use with new partners may have served to decrease social anxiety. Perhaps intervention and prevention strategies with college students should be geared toward teaching social skills to increase self-efficacy in social situations.

A number of caveats must be noted to the present study. This research did not include measures of expectancies or impulsiveness, both of which may have significant influence on engaging in risky sexual behaviors. The relation between sexual risk-taking and alcohol was examined only within the context of extroversion, and future studies should include other explanatory models. This study was also limited in representativeness; the majority of participants were college freshmen and sophomores from only one course. Surveying students from a broader spectrum of the college population would determine whether these high risk behaviors are specific to younger students or whether they change over time. Finally, this study only considered sexual activity for the most recent sexual encounter. It would also be important to assess a broader representation of sexual behaviors in order to more accurately represent an individual's sexual history.



In conclusion, the results of this study indicated that risk factors are closely related; individuals were engaging in multiple risky behaviors, including sexual risk-taking, binge drinking, and increased alcohol use overall. The results provide an initial framework for conceptualizing intervention and prevention efforts for decreasing the likelihood of acquiring STDs among college students.

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