J. DRUG EDUCATION, Vol. 39(2) 133-148, 2009

COMPARING ENTERING FRESHMEN'S PERCEPTIONS OF CAMPUS MARIJUANA AND ALCOHOL USE TO REPORTED USE

GREGG J. GOLD, PH.D.

ALYSSA T. NGUYEN, M.A.
Humboldt State University, Arcata, California

ABSTRACT

Use of marijuana and alcohol among current college students ($N = 1101$) was compared to the perceptions and use of entering freshmen ($N = 481$) surveyed before the start of classes. Entering freshmen significantly misperceived campus norms for marijuana use, over-estimating that almost every student used in the last 30 days, $p < .001$. Perceptions of alcohol use were relatively accurate. These discrepancies in perception could account for why 40.5% of entering students perceived the campus atmosphere to be promoting marijuana use, whereas only 16.2% perceived the campus atmosphere to be promoting alcohol use. How these misperceptions of social norms might be influenced by the reputation of the campus—and how this might affect potential applicants and enrolled students' behaviors are discussed.

INTRODUCTION

This study will examine entering freshmen's perceptions of what campus norms are for alcohol and marijuana use at a specific college. A number of studies have examined college students' perceptions and behaviors for marijuana and alcohol use once students have started college, yet it seems that none have examined these just as students were entering a specific college. Looking at perceptions of use and the behaviors that students bring with them should allow a measure of what the

doi: 10.2190/DE.39.2.b
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outside reputation of a college's drug use norms are. By comparing new students' perceived norms against reported use of these substances by the student body, the accuracy of entering student's expectations can be determined—helping achieve a better general understanding of how drug related social norms are perpetuated and formed on college campuses.

Negative Health Effects of Alcohol and Marijuana Use

The use of either alcohol or marijuana can lead to serious academic and personal problems for college students. Caldeira, Arria, O'Grady, Vincent, and Wish (2008) did an epidemiological study at a large public university of first-year students. For students who had used marijuana five or more times in the last year, they found that 37.2% met the DSM IV clinical definition for having a Cannabis Use Disorder (CUD). For heavier users (six or more times in the last month), 67.2% fit the criteria for having a CUD. Even among users who did not fit the criteria for having a CUD, 40.1% reported cannabis related concentration problems (see also Pope & Yurgelun-Todd, 1996) and missing class due to use (13.9%). Use also affects academic performance in general and memory (Pope, Gruber, Hudson, Huestis, & Yurgelun-Todd, 2001; Pope & Yurgelun-Todd, 1996). In addition, marijuana use has been associated with increased motor vehicle risk behaviors—e.g., not using seat belts (Everett, Lowry, Cohen, & Dellinger, 1999).

Serious problems that students encounter related to the abuse of alcohol on college campuses are well documented. These problems include death, initiating or being the victim of rape, physical injury, assault, driving drunk or riding with a drunk driver, unsafe sex, and academic failure (Everett et al., 1999; Hingson, Heeren, Zakocs, Kopstein, & Wechsler, 2002; Jones, Oeltmann, Wilson, Brener, Hill, 2001; Wechsler, Davenport, Dowdall, Moeykens, & Castillo, 1994).

National Patterns of Use

In a national sample of 17,592 students from 140 colleges in the United States Bell, Wechsler, and Johnston (1997) reported that 11.7% of college students reported using marijuana in the last 12 months and 13.1% reported using in the last 30 days—for a total of about a quarter of all students in the survey saying that they had used marijuana in the preceding year. For a 12-month period, the overall range at various colleges varied from 0 to 54% of students. However, at only 8 of the 140 colleges surveyed did more than 40% of students report using marijuana in the last 12 months. In a random sample of students from 29 California colleges that same year, Patrick, Covin, Fulop, Calfas, and Lovato (1997) reported 30-day use of marijuana to be 17.6%. Results from a National Institutes on Drug Abuse national survey of college students (Monitoring the Future) done in 2006 found reported annual marijuana use at 30%, 30-day use at 16.7%, and daily use at 4.3% (Johnston, O'Malley, Bachman, & Schulenberg, 2007). Results were similar to those of Gledhill-Hoyt, Lee, Strote, and Wechsler (2000). Regarding trends in use,

Johnston et al. noted that daily marijuana use among college students has remained relatively stable since the year 2000. From this data, one could expect annual reported marijuana use at a typical U.S. college to be around 25-30%; 30-day use to be in the 13% to 17% range; and daily use expected to be around 4%.

When compared to marijuana, the alcohol use numbers are considerably higher. Using data from a national survey of college and university students from 2006, Johnston et al. (2007) reported that 40% of college students said that during the past 2 weeks, they had consumed five or more drinks in a row (the generally accepted definition of binge drinking), with 48% reporting being drunk in the last 30 days, and 66.2% in the last year. These numbers are similar to those from other years and surveys looking at national samples of college students (O'Malley & Johnston, 2002; Wechsler, Dowdall, Davenport, Castillo, 1995; White, Labouvie, & Papadaratsakis, 2005).

The Effect of Social Norms on Drug Use Decisions

Because of the negative impacts marijuana and alcohol can have on the personal and academic lives of their students, colleges and universities have long had a vested interest in reducing their student's use and abuse of these drugs. There are a number of factors that determine if use of these drugs begins, continues, and becomes a problem. Among them is the perceived college atmosphere regarding such use, such as a campus's social norms. Social norms can be thought of "as either the actual or perceived behavior of individuals in social networks as well as the group member's attitudes toward target behaviors (i.e., whether group members think one should engage in the behavior)" (Simons, Neal, & Gaher, 2006, p. 43).

In the context of a college student's drug use decisions, social norms serve as a form of social influence (Borsari, 2001; Perkins 1997; Perkins, Meilman, Leichliter, Cashin, & Presley, 1999), and despite the number of factors that can explain drug use among adolescents, social influence remains an important factor (Jenkins, 2001). In general higher perceived norms lead to increased consumption (Martens, Page, Mowry, Damann, Taylor, & Cimini, 2006). Among adolescents and low-level users, social influences (which include perceived social norms) have been cited as the primary reason adolescents begin using drugs (Donaldson, Thomas, Graham, Au, & Hansen, 2000; Jenkins, 2001). Simons et al. (2006) stated that social norms might be the most important factor associated with beginning to use marijuana. In their study, they found that among such variables as gender, social norms, use-utility, and impulsivity, only social norms significantly differentiated users from non-users. Simons et al. defined social-norms as the number of friends who use, and those friends' attitudes toward the participant's use of marijuana. Additionally, Perkins (1997) has shown that a campus's social norms regarding marijuana and alcohol use play a significant role in determining a student's own use (see also Perkins et al., 1999).

In a study predicting first year student's alcohol use, Borsari, Murphy, and Barnett (2007) found: "Perceived norms may be particularly influential during the first year. . . . Therefore, overestimating peers' drinking rates and approval of drinking may be important risk factors for heavy drinking among first-year students" (p. 2069); while Donaldson et al. (2000) felt that ". . . changing social norms (normative education) is an essential ingredient for successful prevention programming" (p. 586). Thus perceived social norms regarding alcohol and marijuana play an important role in the choices a student makes regarding their personal use of these drugs (Martens et al., 2006).

Patterns of Use and Misperceptions

A number of recent studies have been done to determine the rate of marijuana or alcohol use during students' freshman year on campus, or to determine their alcohol and/or marijuana use in high school (Caldeira et al., 2008; Johnston et al., 2007; Leibsohn, 1994; Reifman & Watson, 2003; see Borsari, Murphy, & Barnett, 2007, for a review of the alcohol literature). Others have compared current college student's perceptions of such campus behaviors, with reports of these behaviors from the student body.

Results of these and numerous other studies show that alcohol is the drug of choice at most college campuses. For example, in a study of 100 college campuses, Perkins et al. (1999) found only three where abstinence from alcohol use was the norm (less than 50% of students use), whereas for marijuana, there were 92 schools that fit the criteria for abstinence. Perkins et al. also found students substantially overestimated the average student's use of alcohol. These results are consistent with a number of studies related to alcohol consumption that find current students consistently overestimate the amount of alcohol the typical student consumes (Martens et al., 2006).

It also appears that students overestimate campus use of marijuana, though such data is less abundant (Martens et al., 2006). In the Perkins et al. (1999) study, they found that at campuses where non-use of marijuana was the norm, students still perceived that 28.1% used monthly, 34.8% weekly, and 9.1% daily. At James Madison University in Virginia, Syre, Martino-McAllister, and Vanada (1997) found that 80% of all students drank alcohol, with 7.6 drinks per week being the average, and 87% of the students said the campus atmosphere promoted drinking. For marijuana, 38% of the students used marijuana in the last year, and 23% indicated they were current marijuana users, while 30% felt the campus atmosphere promoted illicit drug use. Similarly, McCabe (2008), in a web survey of 3,639 full-time undergraduate students at a single university, found that while 35.5% of undergraduates reported using marijuana at least once during the past year, participants estimated that 39% of students in general had used within the last year.

In the same vein, Kilmer et al. (2006) surveyed 5,990 students both online and via paper surveys at three Northwestern campuses and found that while two-thirds of the participants reported no use, overall participants felt that 98% of other students used marijuana at least once a year, and 65.31% used once a month or more. Kilmer et al. noted that perceptions of general use increased with the participants' own use (see also Wolfson, 2000). At one university, Page and Scanlon (1999) found that 29.6% men and 19.6% women reported using. However students overall estimated that 34.9% of men and 27.7% of women used. Users estimated 45.2% used, while non-users estimated 34.1% used. Students who perceived use was the norm (i.e., greater than 50% of campus used) were 2.5 times more likely to use themselves—Page and Roland (2004) found similar results.

The Effect of Initial Impressions

Because of the importance of social norms in influencing behavior regarding alcohol and marijuana, and the apparent commonality of student's misperceptions of these norms, the study described here focuses on entering freshmen's preconceived ideas of what a target campus's norms are. These preconceived constructs can be important as initial impressions are particularly difficult to change and tend to have a disproportionate influence on later perceptions, skewing them heavily in the direction of the initial estimation (Asch, 1946; Jones, 1968; Tversky & Kahneman, 1974; see Fiske & Taylor, 1991, for a review). In essence, these initial perceptions serve as an anchoring point for future judgments, such that they will tend to color or bias later judgments in a manner consistent with the original belief (Gold, 2008). This effect is most strongly seen in ambiguous social situations (Mussweiler, Strack, & Pfeiffer, 2000), such as a student's introduction to campus life. For young college students, these initial judgments may have a particularly strong effect as attitudes among freshmen and sophomores tend to be less well-developed and more open to change than later in life (Sears, 1986).

Thus, preconceived or initial opinions regarding campus norms may serve to anchor a student's impressions of a campus' drug culture and have a disproportionate weight in influencing students' relevant behaviors. Important to consider are potential discrepancies between perceived and reported use, as inflated misperceptions could lead to increased drug and alcohol use (Kilmer et al. 2006; Page & Roland, 2004; Page & Scanlon, 1999; Perkins et al. 1999).

Previous researchers have typically found larger discrepancies between students' reported and perceived alcohol use than for marijuana, with students consistently overestimating use of alcohol among peers (Martens et al., 2006). Colleges in the Northeast have been identified as being the area where students were most likely to use marijuana (Bell et al., 1997). However, in 1996, California voters approved Proposition 215 allowing for the cultivation and personal use of marijuana for medical conditions (Ordinance No. 2328). In order to grow and

consume marijuana legally, a person only needs what is known as a "215 card," which can be recommended by any licensed physician. In 2003, a tolerant policy toward marijuana use was implemented in the rural California county of Humboldt, such that holders of a 215 card are allowed to grow up to 99 plants, and possess up to three pounds of marijuana each year for personal use (Humboldt County District Attorney's Office, 2003). Given the prevalence of marijuana cultivation and use in this area (McKinley, 2008) and the potential effect that this would have on incoming students' perceptions of a university located in this county, it is hypothesized that the discrepancy between reported and perceived marijuana use would be larger in this study than the discrepancy between reported and perceived alcohol use seen in other studies.

METHOD

Participants and Procedure

This study was conducted at Humboldt State University (HSU), located in the county of Humboldt, California. HSU is part of the California State University System with an overall enrollment of around 7500 undergraduate and master's students. Close to 80% of students identify themselves as White-non-Hispanic. There were two groups of participants, continuing freshmen through graduate students over age 18 from the spring semester of 2002, and entering freshmen over 18 from 2004. Both studies were approved by the college institutional review board for the protection of human subjects.

For the 2002 sample ($N = 1101$), 58 individual classes were selected to receive the National College Health Assessment survey (see Materials below) using the stratified random sample method to more evenly distribute surveys among class levels and majors. Participants voluntarily filled out the surveys during specifically dedicated class time. Participants were 40.6% male and 59.4% female. First year students comprised 11.9% of the participants, 2nd year 13.2%, 3rd year 24.8%, 4th year 20.3%, 5th year 21.9%, graduate or professional 7.4%, with 0.5% other.

Participants in the 2004 study consisted of entering fall 2004 freshmen from the 4-day university orientation program that was held during the summer before the start of classes. Two 4-day sessions were held, and participation in the orientation program (though not the study) was required of all new students. There were 772 entering freshmen, with 481 (62.3%) who were over 18 and volunteered to participate in the study (45.5% male, 53.2% female, 1.2% decline to state; 90.4% stated age as 18, 9.6% over 18). Surveys were distributed by the orientation counselors and completed at various times during the orientation period.

Materials

The 2002 survey utilized the American College Health Association–National College Health Assessment (ACHA–NCHA) survey instrument developed by the American College Health Association. The ACHA–NCHA has about 300 questions related to college students' physical and psychological health, and includes questions related to alcohol and other drug use. The instrument has been shown to have excellent reliability and validity (American College Health Association, 2000). The substances of interest from the survey were alcohol and marijuana. The questions of interest were "Actual Use: How many days did you use the following substances?" with the choices available as: "Never/not in 30 days"; "One or more days"; and, "Used daily."

The 2004 summer orientation freshmen completed the Humboldt State University–Health & Health Risk Behaviors survey (HSU–HHRB). The HSU–HHRB has about 87 questions related to college students' physical and psychological health, and included questions related to alcohol and other drug use. Questions were from public domain validated items and scales with questions that were specific to HSU generated by the on-campus team involved with the survey. Surveys from which individual items were adapted included the California Healthy Kids Survey, California Health Interview Survey, and the National College Health Risk Behavior Survey. The questions of interest were: "How often do you think students at HSU typically consumed alcohol in the past 30 days. Give your best estimate." Participants were asked to estimate for "Students in general." Answer choices were: "Never used"; "Used, but not in last 30 days"; "1-2 days"; "3-5 days"; "6-9 days"; "10-29 days"; "Daily." An identical question was asked substituting marijuana for alcohol. Also asked were: "Does the social atmosphere on this campus promote alcohol use?"; "Does the social atmosphere on this campus promote marijuana use?" Potential answers were: "Yes"; "No"; "Don't Know."

To see if incoming students' answers were potentially influenced by their own use of marijuana and alcohol as Kilmer et al. (2006) found, the 2004 group was asked questions about their own drug and alcohol use. Students were asked "During the past 30 days, on how many days did you have at least one drink of alcohol?" and "During the past 30 days, on how many days did you use marijuana (pot, hash, hash oil)?" Answer choices were: "Never used"; "Used, but not in last 30 days"; "1-2 days"; "3-5 days"; "6-9 days"; "10-29 days"; "Used every day."

RESULTS

Data were screened and results analyzed using SPSS and Minitab. Participants chose various categories for their responses, and counts in each category were compared. For these comparisons, this was an analysis of nominal data. With

such analysis, use of chi-square techniques is recommended (Howell, 2004; Wickens, 1989).

Missing Data Analysis

Approximately 22.2% of participants from the 2004 entering freshmen group did not respond to items asking about their actual marijuana and alcohol use. Due to the pattern of missing data (the entire section tended to be skipped) data imputation was not deemed appropriate. Data were analyzed to determine if there were systematic differences between those who answered the marijuana and alcohol use questions and those who did not.

Missing data patterns were related to respondents' sex. For both marijuana (χ^2 (1, N = 475) = 9.76, p = .002, ϕc = .14) and alcohol (χ^2 (1, N = 475) = 11.88, p = .001, ϕc = .16), male participants were more likely than females to skip the actual use questions for marijuana (28.8% vs. 16.8% respectively) and alcohol (30.1% vs. 16.8% respectively). Thus, males were significantly less willing than females to answer questions about their actual use of alcohol and marijuana.

For the perceived use questions, response was strongly dependent on whether students responded to questions related to their actual use of both marijuana (χ^2 (1, N = 481) = 422.05, p < .001, ϕc = .94) and alcohol (χ^2 (1, N = 481) = 416.69, p < .001, ϕc = .93). Participants who answered the actual use questions were significantly more likely than participants who did not to also answer questions asking about their estimates of drug and alcohol use on campus.

Reported Alcohol Use Compared to Estimates of Use

The 2002 campus-wide survey (N = 1101) found that continuing students (freshman through seniors) reported that during the 30 days preceding their survey, 75.8% had used alcohol, with daily use at 2.0%, and 11.5% who reported never using alcohol (numbers reported for 30-day use include daily use). Note these numbers are similar to results from the studies cited above which found a very large percentage of students using alcohol.

The 2004 entering freshmen's (overall N = 481) estimates of campus alcohol use was analyzed next. For alcohol use during the past 30 days (N = 366), estimates for students in general was 69.9%, with daily use at 4.6%, and never used at 2.1%. Compared to the 2002 data, there was no significant difference for 30-day use, a significant 2.6% overestimation for daily use with χ^2 (1, N = 1467) = 7.43, p = .007, ϕc = .071, and a significant 9.4% underestimation for never used with χ^2 (1, N = 1467) = 28.11, p = .001, ϕc = .14. Considering there were no significant differences for 30-day use, and the small effect sizes for the other categories, this data can be interpreted as indicating the 2004 group was relatively accurate in estimating campus alcohol use.

For the 2004 group's own use of alcohol, 56.4% reported using in the last 30 days, with 2.4% using daily, and 22.5% reported having never used. The bivariate correlation between participants own use and estimates of campus use was not significant, $r(N = 363) = .10$, indicating that estimates of campus use were independent of participants own use.

Reported Marijuana Use Compared to Estimates of Use

For marijuana, the 2002 campus-wide survey ($N = 1101$) found that continuing students (freshman through seniors) reported that during the 30 days preceding the survey 46% had used marijuana, with daily use of marijuana at 11.6%, and 35.5% never using marijuana. Using chi-squared goodness of fit, the 30-day reported marijuana use among the 2002 student body was significantly higher (using 17% as the criterion) than the 30-day national average of around 13% to 17% (see studies cited above) with $\chi^2 (1, N = 1101) = 544.18, p < .001, \phi c = .70$. Compared to the national average, campus marijuana use was much higher than the norm.

The 2004 entering freshmen's (overall $N = 481$) estimates of campus marijuana use was analyzed next. For marijuana use during the past 30 days ($N = 366$), freshmen estimates for students in general was 91.3%, with daily use at 19.4%, and never used at 3.3%. These numbers were compared to reports from the 2002 student body. The 2004 entering freshmen significantly overestimated 30-day marijuana use by 45.3%, with $\chi^2 (1, N = 1467) = 230.32, p < .001, \phi c = .40$, significantly overestimated daily use by 7.8%, with $\chi^2 (1, N = 1467) = 14.16, p < .001, \phi c = .098$, and underestimated those who never used by 32.2%, with $\chi^2 (1, N = 1467) = 143.25, p < .001, \phi c = .31$. As indicated by the large effect sizes, the data indicate 2004 group highly overestimated the use of marijuana.

For the 2004 group's own use for marijuana, 34.9% reported using in the last 30 days, with 9.1% using daily, and 45% reported having never used. Though the bivariate correlation between participants own use and estimates of campus use was significant, with $r(365) = .22, p < .01, r^2 = .05$, the small effect size indicates a weak relationship between estimates of campus use and participants own use.

Comparing Estimates of Alcohol Use to Estimates of Marijuana Use

The 2004 entering freshmen's estimates of campus use of alcohol versus marijuana was evaluated using chi-square goodness of fit ($N = 366$). For 30-day use, compared to alcohol (69.9%), participants felt that marijuana use (91.3%) would be 21.4% higher, a significant difference, with $\chi^2 (1, N = 366) = 23.98, p < .001, \phi c = .26$. For daily use, compared to alcohol (4.6%), participants felt that marijuana use (19.4%) would be 14.8% higher (about four times greater), a significant difference, with $\chi^2 (1, N = 366) = 174.19, p < .001, \phi c = .68$. No significant

difference was found for never used. These results indicate that the 2004 group perceived marijuana use to be significantly greater among the student body than alcohol. The 2004 group felt that almost every student used marijuana in the last 30 days, and that almost four times as many (1 in 5) used marijuana every day as compared to those who used alcohol (1 in 20).

Impressions of Campus Social Atmosphere Regarding Drug Use

As the above results indicate, the 2004 entering freshmen greatly overestimated the amount of marijuana use among the student body, and inconsistent with national studies cited above (and data from the 2002 students), estimated marijuana use would be significantly higher than alcohol use. These misperceptions regarding marijuana are useful in understanding the results concerning these students' attitudes regarding the campus social atmosphere. When asked, "Does the social atmosphere on this campus promote alcohol use?" there was an overall significant difference with yes = 16.2%, no = 27.7 %, and don't know = 55.5%, with $\chi^2(2, N = 478) = 118.62, p < .001, \phi c = .50$. The number of students who said yes was significantly less than those who said no, $\chi^2(1, N = 211) = 14.34, p < .001$, $\phi c = .26$. Though the data shows the 2004 group expected a large percentage of students to be using alcohol, the group perceived that the campus atmosphere did not promote alcohol use.

When asked the same question concerning marijuana, results were the opposite. There was an overall significant difference with yes = 40.5%, no = 17.7 %, and don't know = 41.4%, with $\chi^2(2, N = 479) = 52.43, p < .001, \phi c = .33$. The number of students who said yes was significantly greater than those who said no, $\chi^2(1, N = 280) = 43.21, p < .001, \phi c = .39$. Given the large effect sizes, it appears the 2004 group perceived the campus atmosphere strongly promoted marijuana use, though the 2002 data showed that students' use of marijuana was actually significantly less than that of alcohol.

DISCUSSION

This study was designed to explore entering freshmen's preconceived expectations of a single campus's drug culture, and the potential these expectations might have to influence a student's own behavior. The 2004 freshmen were surveyed before school started and before they had a chance to interact with the current student body. This was done in an attempt to get an uncontaminated snapshot of what these new students perceived the campus norms were regarding alcohol and marijuana use. These impressions were then compared with a survey of the student body (freshmen–graduate students) done in 2002 to ascertain their accuracy.

It was hypothesized that because of a specific county's reputation for marijuana tolerance and use, new freshmen would arrive on a campus in that county expecting campus marijuana use to be greater than alcohol use—a reversal of the pattern of perceptions found at other schools. This hypothesis was supported—new students surveyed before the start of classes did predict greater use of marijuana than alcohol, while highly overestimating the amount of marijuana used in general by current students. They were relatively accurate in their estimations of alcohol use however.

Consistent with national rates, the 2002 student body (freshmen through graduate) reported significantly higher rates of alcohol use than marijuana. However, 2004 arriving freshmen felt that virtually all students used marijuana heavily, inconsistent with the fact that over half of the 2002 student body either never used, or used less than once a month. Thus, the 2004 incoming freshmen had significantly inflated misperceptions of campus norms regarding marijuana use. These misperceptions are implicated in the 2004 group's responses concerning whether the campus atmosphere promoted alcohol or marijuana. The 2004 group arrived on campus feeling strongly that the campus atmosphere promoted marijuana use, not alcohol. Though a relatively large percentage of incoming freshmen reported using marijuana (which will be discussed below), the statistically weak relationship between use and expectations does not appear sufficient to fully explain their perceptions of the campus atmosphere regarding marijuana. There was no relationship between these students' alcohol use and their expectations.

So where might these expectations have come from? As suggested in the introduction, because of the state and county in which it resides, and perhaps through an effect similar to that of "guilt by association," the campus itself appears to have acquired a reputation for not only being marijuana friendly, but promoting the use of marijuana. Officially this is not the case, "Humboldt State University subscribes to a drug-free campus and workplace. . . . Students, faculty, and staff violating these policies are subject to disciplinary action, which may include expulsion. . . ."(*Humboldt State University Course Catalog 2008-2009*, p. 278). Note this exact same policy and wording is found in catalogs dating back to 1996, and is strictly enforced (campus police Chief Tom Dewey, personal communication, 04/25/2008). Though the college administration and agencies actively discourages marijuana use, incoming students perceive that the college atmosphere promotes use. So the college's reputation in this regard appears to be determined by factors other than official policy or efforts. Thus, it appears to have an outside reputation regarding what the campus norms are regarding marijuana use, and it seems this reputation is influencing new students perceptions.

A reputation for the promotion of marijuana use would help explain why it is that when compared to other universities, these students tend to use marijuana at elevated rates. For alcohol, while the rate of use is objectively high, it is similar to that at most other schools. Potentially, both of these rates of use can be explained by the same underlying dynamic—the effect of social norms on students' drug use

decisions. As noted earlier, perceptions of norms regarding drug use play an important role in determining an individual student's own behaviors regarding drugs. As Borsari et al. (2007) also noted, perceived norms play a particularly important role in a student's use decisions during their first year—with first year patterns tending to persist throughout the college experience.

For alcohol, perceived norms for college use are well established nationwide. Alcohol use, and binge drinking in particular, is viewed as a college rite of passage across the United States. Students at almost every college and university surveyed in the United States both overestimate the amount of such behavior, and perceive peer support for such behavior (Borsari et al., 2007; Center on Addiction and Substance Abuse, 1994). There is no reason to think these students would feel any differently—and given the importance of social norms in determining drinking patterns—would help to explain why the drinking rate is similar to other schools.

However, the rate of marijuana use is an anomaly compared to national patterns—with something to be learned from this. Students (both incoming and current) have significantly greater rates of use than the national average. Among new students, perceptions of use are grossly inflated compared to actual use. Students arrive on campus thinking that virtually all students use marijuana, with about 25% using every day. Such misperceptions of what is considered normative would certainly impact decisions of whether or not to begin using, and how much to use once a student started. It cannot be overemphasized that students arrive on campus with these misperceptions already in place. Thus (as noted above), these misperceptions would have an undue influence on what students perceive the social norms to be—making these perceptions very difficult to change. As the research cited above indicates, these misperceptions would function as a constant source of perceived peer pressure for non-users to use, and for users to use more.

It is not only that some students arrive on campus as abstainers and then begin to use that could explain the elevated rates of use. The high rate of marijuana use among the incoming freshmen class indicates that the campus attracts high school students who are current users. Since the campus is perceived as "promoting the use of marijuana," and entering students perceive that virtually everyone on campus uses, it is reasonable to assume that current high-school marijuana users would be attracted to such an atmosphere. Thus, a disproportionate number of potential applicants who are already using marijuana in high school might be choosing to attend because of the school's perceived marijuana friendly atmosphere. This would tend to skew the overall undergraduate population in the direction of use, and function as a source of genuine peer pressure on non-users to become users.

The student impressions of campus norms regarding marijuana and alcohol described here may have important lessons for other institutions. From this study it is apparent that many students can arrive on campus with preconceived misperceptions about a specific institutions norms, misperceptions that differ greatly from the actual norms. Because these misperceptions are literally a student's first thoughts about what is acceptable and what is not; as noted above, research shows

they will have a disproportionate influence on future perceptions and behavior. This could greatly complicate a university's efforts to intervene to promote healthy behavior on campus. Essentially then, by the time the student is enrolled in classes and completing their first or second semester, it may be too late to effectively intervene to change impressions of social norms. Thus, it is important for a college or university to know what its reputation is regarding various norms—not only among current students, but also among those entering and considering applying to the institution. In order to do this, research may need to be done not only with those students already in classes (as is the norm), but before students begin classes (as was done here), and potentially with high school students off campus.

If results show students and potential applicants have harmful preconceived misperceptions of campus norms, the correction of these perceptions may need to begin before students set foot on campus, and perhaps even before students apply to an institution. Conceivably, social norms education may need to be incorporated as part of the recruitment process in order to dispel misperceptions before students arrive on campus and have anchored on their preconceived misperceptions.

Though the study describe here is essentially a case study of misperceptions with regard to marijuana at a single campus, the lessons may be applied broadly. Every college and university faces problems with regard to student behavior, problems that can be exacerbated by misperceptions of campus norms. Some problems that may be unique to a specific institution include: binge drinking; drinking and driving; other drug use; sexual promiscuity; unprotected sex; and perhaps academic dishonesty and class attendance issues. Social norms research strongly suggests that how students respond to these and other issues will be affected by their perceptions of campus norms. As the study here has shown, it is important for campus administrators to know what misperceptions exist among entering students regarding campus norms. If universities wait to begin norms education until after classes have begun, students' may have already anchored on their first impressions of campus norms, making those misperceptions very difficult if not impossible to change.

Limitations

The results described here are from a single university regarding its specific problem with regard to marijuana. Thus, these results may not generalize to other institutions and their unique issues. Additionally, 481 students of the 2004 entering freshmen class (62.3%) choose to take the survey, and of that group 366 chose to answer the questions regarding drug use. Additionally, men tended to ignore the drug use questions at a higher rate than women did. Since 18-year-old men tend to use both alcohol and marijuana at higher rates than do women (White et al., 2005), rates of use among the 2004 group may be understated. However, it is difficult to know how results might have changed if the entire 2004 entering

class had taken the survey, and if all of the 481 who took the survey answered all of the questions.

REFERENCES

Asch, S. E. (1946). Forming impressions of personality. *Journal of Abnormal and Social Psychology, 1,* 1956-1972.

American College Health Association. (2000). Retrieved June, 2008 from About ACHA–NCHA Generalizability, Reliability, and Validity Analysis. [Online]. Available: http://www.acha-ncha.org/grvanalysis.html

Bell, R., Wechsler, H., & Johnston, L. D. (1997). Correlates of college student marijuana use: Results of a US national survey. *Addiction, 92,* 571-581.

Borsari, B. (2001). Peer influences on college drinking: A review of the research. *Journal of Substance Abuse, 13*(4), 381-424.

Borsari, B., Murphy, J. G., & Barnett, N. P. (2007). Predictors of alcohol use during the first year of college: Implications for prevention. *Addictive Behaviors, 32*(10), 2062-2086.

Caldeira, K. M., Arria, A. M., O'Grady, K. E., Vincent, K. B., & Wish, E. D. (2008). The occurrence of cannabis use disorders and other cannabis-related problems among first-year college students. *Addictive Behaviors, 33,* 397-411.

Center on Addiction and Substance Abuse (1994). *Rethinking rites of passage: Substance abuse on America's campus. A report by the commission on substance abuse at colleges and universities.* New York: Center on Addiction and Substance Abuse.

Donaldson, S. I., Thomas, C. W., Graham, J. W., Au, J. G., & Hansen, W. B. (2000). Verifying drug abuse prevention program effects using reciprocal best friend reports. *Journal of Behavioral Medicine, 23*(6), 585-601.

Everett, S. A., Lowry, R., Cohen, L. A., Dellinger, A. M. (1999). Unsafe motor vehicle practices among substance-using college students. *Accident Analysis and Prevention, 31,* 667-673.

Fiske, S. T., & Taylor, S. E. (1991). *Social Cognition* (2nd ed.). New York: McGraw- Hill.

Gledhill-Hoyt, J., Lee, H., Strote, J., & Wechsler, H. (2000). Increased use of marijuana and other illicit drugs at U.S. colleges in the 1990s: Results of three national surveys. *Addiction, 95*(11), 1655-1667.

Gold, G. J. (2008). Primacy effect (attribution). In *Encyclopedia of Social Psychology* (Vol. 2, pp. 697-698). Thousand Oaks, CA: Sage Publications, Inc.

Hingson, R., Heeren, T., Zakocs, R., Kopstein, A., & Wechsler, H. (2002). Magnitude of alcohol-related mortality and morbidity among U.S. college students ages 18 to 24. *Journal of Studies on Alcohol, 63,* 136-144.

Howell, D. C. (2004). *Fundamental statistics for the behavioral sciences.* Belmont, CA: Thompson.

Humboldt County District Attorney's Office. (2003, February 14). *Humboldt County Medical Marijuana Guidelines.* [Online]. Available: http://www.safeaccessnow.net/humboldt.htm

Humboldt State University (2008). *Course Catalog* (2008-2009) [Brochure]. Arcata, CA: Humboldt State University.

Jenkins, J. E. (2001). Rural adolescent perceptions of alcohol and other drug resistance. *Child Study Journal, 31*(4), 211-224.

Johnston, L. D., O'Malley, P. M., Bachman, J. G., & Schulenberg, J. E. (2007). *Monitoring the Future National Survey Results on Drug Use, 1975–2006. College Students and Adults Ages, 19–45 Vol. II.* Bethesda, MD: National Institute on Drug Abuse (NIH publication 07-6206).

Jones, S. E., Oeltmann, J., Wilson, T. W., Brener, N. D., Hill, C. V. (2001). Binge drinking among undergraduate college students in the United States: Implications for other substance use. *Journal of American College Health, 50*(1), 33-38.

Jones, E. E. (1968). Pattern of performance and ability attribution: An unexpected primacy effect. *Journal of Personality and Social Psychology, 10,* 317-340.

Kilmer, J. R., Walker, D. D., Lee, C. M., Palmer, R. S., Mallett, K. A., Fabiano, P., et al. (2006). Misperceptions of college student marijuana use: Implications for prevention. *Journal of Studies on Alcohol, 67*(2), 277-281.

Leibsohn, J. (1994). The relationship between drug and alcohol use and peer group associations of college freshmen as they transition from high school. *Journal of Drug Education, 24*(3), 177-192.

Martens, M. P., Page, J. C., Mowry, E. S., Damann, K. M., Taylor, K. K., Cimini, M. D. (2006). Differences between actual and perceived student norms: An examination of alcohol use, drug use, and sexual behavior. *Journal of American College Health, 54*(5), 295-300.

McCabe, S. E. (2008). Misperceptions of non-medical prescription drug use: A web survey of college students. *Addictive Behaviors, 33*(5), 713-724.

McKinley, J. (2008, June 9). Marijuana hotbed retreats on medicinal use. *New York Times.* [Online] Available: http://www.nytimes.com/2008/06/09/us/09pot.html?_r=1&ex=1213675200&en=d2eef644693050da&ei=5070&emc=eta1&oref=slogin

Mussweiler, T., Strack, F., & Pfeiffer, T. (2000). Overcoming the inevitable anchoring effect: Considering the opposite compensates for selective accessibility. *Personality and Social Psychology Bulletin, 26,* 1142-1150.

O'Malley, P., & Johnston, L. D. (2002). Epidemiology of alcohol and other drug use among American college students. *Journal of Studies on Alcohol, 14,* 23-39.

Page, R. M., & Roland, M. (2004). Misperceptions of the prevalence of marijuana use among college students: Athletes and non-athletes. *Journal of Child and Adolescent Substance Abuse, 14*(1), 61-75.

Page, R. M., & Scanlon, A. (1999). Perceptions of the prevalence of marijuana use among college students: A comparison between current users and nonusers. *Journal of Child and Adolescent Substance Abuse, 9*(2), 1-12.

Patrick, K., Covin, J. R., Fulop, M., Calfas, K., & Lovato, C. (1997). Health risk behaviors among California college students. *Journal of American College Health, 45*(6), 265-272.

Perkins, H. W. (1997). College Student Misperceptions of Alcohol and Other Drug Norms among Peers: Exploring Causes, Consequences, and Implications for Prevention Programs. In *Designing Alcohol and Other Drug Prevention Programs in Higher Education* (177-206). Newton, MA: The Higher Education Center for Alcohol and Other Drug Prevention, U.S. Department of Education.

Perkins, H. W., Meilman, P. W., Leichliter, J. S., Cashin, J. R., & Presley, C. A. (1999). Misperceptions of the norms for the frequency of alcohol and other drug use on college campuses. *Journal of American College Health, 47,* 253-258.

Pope, H. G., Gruber, A. J., Hudson, J. I., Huestis, M. A., & Yurgelun-Todd, D. (2001). Neuropsychological performance in long-term cannabis users. *Archives of General Psychiatry, 58*(10), 909-915.

Pope, H. G., & Yurgelun-Todd, D. (1996). The residual cognitive effects of heavy marijuana use in college students. *Journal of the American Medical Association, 275*(7), 521-527.

Reifman, A., & Watson, W. K. (2003). Binge drinking during the first semester of college: Continuation and desistance from high school patterns. *Journal of American College Health, 52*(2), 73-81.

Sears, D. O. (1986). College sophomores in the laboratory: Influences of a narrow database on social psychology's view of human nature. *Journal of Personality and Social Psychology, 44,* 233-250.

Simons, J. S., Neal, D. J., & Gaher, R. M. (2006). Risk for marijuana-related problems among college students: An application of zero-inflated negative binomial regression. *American Journal of Drug and Alcohol Abuse, 32*(1), 41-53.

Syre, T. R., Martino-McAllister, J. M., & Vanada, L. M. (1997). Alcohol and other drug use at a university in the southeastern United States: Survey findings and implications. *College Student Journal, 31*(3), 373-381.

Tversky, A., & Kahneman, D. (1974). Judgement under uncertainty: Heuristics and Biases. *Science, 185,* 1124-1131.

Wechsler, H., Davenport, A., Dowdall, G., Moeykens, B., & Castillo, S. (1994). Health and behavioral consequences of binge drinking in college: A national survey of students at 140 campuses. *Journal of the American Medical Association, 272,* 1672-1677.

Wechsler, H., Dowdall, G. W., Davenport, A., & Castillo, S. (1995). Correlates of college student binge drinking. *American Journal of Public Health, 85*(7), 921-926.

White, H. R., Labouvie, E. W., & Papadaratsakis, V. (2005). Changes in substance use during the transition to adulthood: A comparison of college students and their non-college age peers. *Journal of Drug Issues, 35*(2), 281-306.

Wickens, T. D. (1989). *Multiway contingency tables for the social sciences*. New Jersey: Lawrence Erlbaum Associates.

Wolfson, S. (2000). Students' estimates of the prevalence of drug use: Evidence for a false consensus effect. *Psychology of Addictive Behaviors, 14*(3), 295-298.

Direct reprint requests to:

Gregg J. Gold
HSU Psychology
1 Harpst Street
Arcata, CA 95521
e-mail: gregg.gold@humboldt.edu