ORIGINAL ARTICLE

Underestimations of Blood Alcohol Concentration Predict Event-Specific Negative Consequences

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The current study sought to establish in vivo misperception of blood alcohol concentration (BAC) as a predictor of event-specific alcohol-consumption-related negative consequences. During spring 2010, 225 (56.4% male) college students, who had consumed at least one alcoholic drink within the 2 hr prior to assessment, completed a questionnaire, gave a breath sample to assess breath alcohol content, and later completed a follow-up questionnaire. Underestimation of BAC was predictive of event-specific, alcohol-consumption-related negative consequences, over and above other factors including total drinks consumed. This study highlights the need for more focused BAC education strategies at American universities.

Keywords alcohol, blood alcohol concentration (BAC), alcohol-related consequences, college students, BAC misperception

INTRODUCTION

Risky drinking and associated alcohol-consumption-related problems among college students are persistent health issues at American colleges and universities (Task Force of the National Advisory Council on Alcohol Abuse and Alcoholism, 2002). College students' social behaviors frequently involve "heavy alcohol consumption" (Durant et al., 2008; Zamboanga, Rodriguez, & Horton, 2008), which often result in negative consequences for the drinking students themselves, their peers, and their campus communities (Hingson, Hecren, Winter, & Wechsler, 2005; Hingson, Zha, & Weitzman, 2009; Perkins, 2002; Wechsler, Lee, Kuo, & Lee, 2000). These consequences include personal injuries, unplanned sexual activity, social problems, academic struggles, and legal issues (see Perkins, 2002, for review). Alcohol-consumption-related problems during this time period can have long-term effects on physical and psychological well-being (Schulenberg, Maggs, & O'Malley, 2003) and can hinder the attainment of traditional and/or favorable adult roles (White & Jackson, 2004). Moreover, compared with their non-college peers, American college students tend to drink more heavily per occasion and are more likely to receive a diagnosis of DSM-IV alcohol abuse (O'Malley & Johnston, 2002; Slutske, 2005). Research focusing on how and why alcohol-consumption-related problems occur can help identify risk factors to be targeted on alcohol misuse prevention and intervention programs seeking to reduce such risk.

One's level of intoxication, measured by blood alcohol concentration (BAC), is a valid and particularly useful predictor of alcohol-consumption-related risk. Drinkers at the same BAC level experience homogenous alcohol-consumption-related physiological effects and impairments (Hustad & Carey, 2005; Maisto & Adesso, 1977), which can lead to unwanted behavioral outcomes. Indeed, higher levels of alcohol consumption (and therefore intoxication) are related to higher levels of negative consequences (Park & Grant, 2005). The odds of reporting negative alcohol-consumption-related consequences and risk behaviors are largely associated with increases in BAC (Neal & Carey, 2007; Turner, Bauerle, & Shu, 2004). Moreover, certain environmental factors (e.g., party size, drink specials at bars) common to college settings in which alcohol is consumed appear to lead to higher BAC levels (Clapp, Reed, Holmes, Lange, & Voas, 2006; Thoms et al., 2008), making the college environment itself particularly risky for hazardous drinking behaviors. Not all individuals who drink "heavily" experience consequences, however, and not all individuals who engage
in "lighter drinking" and avoid alcohol-consumption-related problems (Ray, Turrisi, Abar, & Peters, 2009). Moreover, research has found the correlation between drinking quantity and frequency and alcohol-consumption-related negative consequences in this population to rarely exceed the moderate range of 0.6 (LaBrie, Hummer, Neighbors, & Larimer, 2010; Larimer et al., 2001; Lee, Geisner, Patrick, & Neighbors, 2010; Turner, Larimer, & Sarason, 2000). Thus, substantial variance of consequences remains unaccounted for by drinking behaviors, highlighting.

One potential predictor of alcohol-consumption-related risk is perceived intoxication. Research on collegiate alcohol use has shown consumption of alcohol to affect students' ability to accurately assess their level of intoxication (Bullers & Ennis, 2006). Misperceived intoxication can subsequently reduce a drinker's ability to perceive risks related to alcohol consumption (e.g., Maisto, Carey, Carey, & Gordon, 2002). Developments in behavioral economics suggest that the impaired ability to assess risk due to underestimating intoxication levels may lead students to make behavioral decisions while drinking that place them at serious risk. People typically do not voluntarily make decisions that make them worse off or place them at risk (Vuchinich & Heather, 2003). However, decision-making is often based on beliefs regarding the probability of uncertain events, and this probability is often based on heuristics that can be irrational (Tversky & Kahneman, 1982). One such heuristic is availability: the tendency for people to assess the frequency of an occurrence by the case with which it comes to mind (Tversky & Kahneman, 1982). As college students experience positive outcomes while drinking more frequently than negative ones (Park, 2004), and the immediate social benefits of "heavy drinking" tend to be emphasized in the moment while delayed negative consequences are discounted (Skidmore & Murphy, 2010), positive associations with drinking may more easily come to mind. Thus, the benefits of drinking may increase in value and students may continue to drink more heavily as a result.

Perceived intoxication can exacerbate this process, for reduced perceptions of current risk can make this immediate benefit of drinking seem even greater (Ainslie & Monterosso, 2003). This risky temporal discounting, strengthened by misperceived intoxication, may thus encourage students to continue a behavioral pattern of choosing certain behaviors or entertaining particular situations that they cannot safely navigate, yet might otherwise avoid if they could accurately account for the costs and benefits involved. While college students often do not accurately estimate their BACs while drinking (e.g., Clapp et al., 2006; Thombs, Olds, & Snyder, 2003), research has not yet investigated possible relationships between BAC misperceptions and behavioral impairment or negative outcomes from drinking (see Thombs et al., 2003 for comment). Identifying the associations between such factors can provide important direction for where to focus BAC education components.

The current study sought to establish event-level misperception of BAC, an as of yet untested potential predictor of alcohol-consumption-related risk, as a relevant target for alcohol interventions among college students. The main purpose of this study was to examine whether students' misperceptions of their intoxication level during a drinking occasion predict their event-specific alcohol-consumption-related negative consequences. In order to assess the relative impact of BAC misperception on negative consequences, we examined BAC misperceptions along with other well-known predictors of college student drinking and subsequent consequences. Namely, we included the amount of alcohol consumed (Lee et al., 2010), gender (O'Malley & Johnston, 2002; Vaisman-Tzachor & Lai, 2008), ethnicity (see White & Jackson, 2004), Greek-organization status (i.e., affiliation with an American fraternity or sorority; Park, Sher, Wood, & Kruk, 2009; Sher, Bartholow, & Nanda, 2001; Turrisi, Malliet, Mastroleo, & Larimer, 2006), and prepartying participation (Kenney, Hummer, & LaBrie, 2010) into the prediction model. We hypothesized that participants' in vivo misperceptions of their BACs (namely, underestimations of BAC) would be predictive of event-specific alcohol-consumption-related negative consequences over and above other reliable predictors.

METHODS

Participants
Participants were 305 (182 males and 123 females) college students recruited on or near the campuses of two west coast universities. Of these participants, 225 (127 males and 98 females) completed the follow-up survey and comprised the final sample used in all analyses, yielding a retention rate of 73.7%. Participants in the final sample ranged in age from 18 to 22 years (M = 20.22, SD = 1.26). The ethnicity of the sample was 71.1% Caucasian, 12.0% Hispanic, 4.4% Asian, 0.9% African American, 8.4% mixed, and 3.2% other.

Participants who completed the follow-up survey did not differ significantly from those who only completed baseline on age, ethnicity, and total self-reported drinks consumed at baseline (p > .05 for each). Although a greater percentage of males did not complete the follow-up survey in comparison to females, there was no difference on total self-reported drinks between males who only completed baseline and males who completed the follow-up survey (p > .05).

Materials and Procedure
The research team consisted of three to five research assistants who were individually trained to administer
either a breathalyzer or questionnaire. Sampling occurred between the hours of 10 p.m. and 3 a.m. across a 3-month span. Participants were approached by the research team either when exiting events and establishments at which alcohol was consumed or in front of their on-campus residence as they returned home. The research team asked potential participants if they would be willing to partake in a brief study on alcohol beliefs and behaviors among drinking college students. If they expressed interest in the study, they were asked two questions for selection criteria: whether they were a college student and whether they had consumed any alcoholic beverages within the last 2 hr. If they answered yes to both questions, the researcher explained that study participation would involve: (1) learning about the study and providing informed consent, (2) answering a brief paper–pencil questionnaire, (3) providing a breath sample to assess breath alcohol concentration (BrAC), and (4) providing an email address to allow the researchers to contact them within the following 48 hr for a brief online follow-up survey. A member of the research team then reviewed an institutional review board (IRB)-approved consent form with the participant, informed him/her of confidentiality, and noted that, upon completion of the follow-up survey, the participant would receive another email with his/her BrAC reading from the night of assessment and information on how to redeem a $10 iTunes gift certificate as incentives. If the student agreed to these conditions, he/she signed the form and began completing the initial questionnaire.

**Baseline Assessment**
Participants first completed a brief, two-page questionnaire (approximately 5–10 min in length) and then had their BrAC assessed via a breathalyzer. For the breathalyzer, participants were instructed to take a deep breath and then to blow strongly into the mouthpiece for 5 s. The breathalyzer was modified so that participants’ BrAC values were not visibly displayed; thus, neither participants nor the researchers were made aware of the BrAC value during assessment. Using the AlcoHAWK PT500 P, BrAC readings were recorded internally and test results were sent immediately via a wireless connection to a private printer accessible only by the researcher. Each printout had a unique identification number, which was paired with the corresponding participant and recorded on his or her questionnaire. Printouts were not accessed and examined by the principal investigator until the collection period was over (i.e., after the research team returned from collecting data). This procedure was consistent with previous IRB-approved studies of the same nature to meet concerns regarding the length of the entire procedure, experimenter bias, the possibility of influencing students to drink more after assessment, and ethical standards for privacy and legal liability (e.g., Carey & Hustad, 2002; Clapp et al., 2006; Hustad & Carey, 2005; Lange & Voas, 2001).

**Follow-Up Survey**
Within 48 hr following each respective baseline assessment, researchers sent a follow-up email to the participants that contained a link to an online survey. Before taking the survey, participants once again received an IRB-approved informed consent form and a copy of the Human Subjects Bill of Rights. The same IRB-approved informed consent form was utilized due to an ethical motivation to re-inform participants of the study’s purpose and procedure that they consented to at the baseline. Participants chose to participate by electronically consenting and were then directed to a series of questions that took approximately 10 min to complete. Once completed, participants were electronically sent their BrAC reading from baseline as well as an internet code to redeem their $10 iTunes gift certificate. Participants who had a BrAC over 0.15 were also sent general information on BAC, alcohol’s effects at different levels of BAC, and follow-up information on counseling services and other resources for alcohol use. This information provided direct benefit to the participants for partaking in the study (Kleinig & Einstein, 2006).

**Measures**

**Demographics**
The baseline questionnaire began with an assessment of demographic variables, including age, gender, ethnicity, and weight. Demographics assessed at follow-up were Greek-organization status and preparty status. Greek-organization status was assessed by the following question: “Are you affiliated with a Greek Organization?” Participants who responded “yes” were listed as “Greek” and those who responded “no” were listed as “non-Greek.”

To determine prepartying status, all participants were presented with the following question, “Did you preparty the night you participated in our study?” Prepartying was defined as consuming alcohol prior to going out that night. Individuals answering “yes” were categorized as “preparty,” while those who marked “no” were categorized as “nonprepartying.”

**gBAC**
Participants were asked to “guesstimate” their current BAC level with the following question: “What would you estimate is your current Blood Alcohol Content?” If a participant asked what particular BAC values corresponded to, the research assistant gave the following answer: “Answers may range from .00 (which is sober) to .40 (which is the lethal limit), where .08 is the legal limit for intoxication while driving in the state of California.” Participants then marked their guesstimate on the questionnaire.

**Drinking Behaviors**
The number of standard drinks was assessed at baseline. Before answering questions about drinking behavior, participants were presented with the definition of a standard drink (defined as a drink containing one-half ounce of ethyl alcohol—one 12 oz. beer, 8 oz. of malt liquor, one 4 oz. glass of wine, or one 1.25 oz. shot). Participants were asked the following question: “How many standard drinks did you have of each of the following types of alcohol beverages?” Participants then listed the total number of
beers, spirits, wine/champagne, malt liquor, mixed drinks, or other type of drink (in terms of standard drinks) that they had consumed that night. A sum score of all standard drinks consumed was created to represent total standard drinks consumed.

Negative Consequences
Alcohol-consumption-related negative consequences were assessed at follow-up using a modified version of the 24-item Brief Young Adult Alcohol Consequences Questionnaire (BYACQ; Kahler, Strong, & Read, 2005). This modified version assessed consequences specifically experienced on the night when participants completed the baseline questionnaire. Participants were given a list of items detailing things that sometimes happen to people due to alcohol consumption either while they are drinking or after they have been drinking. For each item, they were instructed to mark either “no” or “yes” to indicate whether that item describes something that happened on the night when they participated in the study. A composite measure for overall negative consequences was constructed as a sum score of all individual items experienced.

Analytic Plan
Level of BAC misperception was calculated for each participant by taking the BAC actual (BrAC) score and subtracting the guesstimated BAC (gBrAC) score. A derived positive score represented underestimation of actual BAC, a score of zero represented accurate estimation of BAC, and a negative score represented overestimation of the actual BAC. Correlation analyses examined the relationship between BAC misperception and negative consequences (both the composite measure and individual items). Subsequently, a multiple regression analysis addressed the question of whether the misperception of BAC posed additional risk in experiencing alcohol-consumption-related negative consequences on the night of assessment (using the composite measure), over and beyond important covariates linked in past research to be associated with drinking outcomes and alcohol-consumption-related consequences. These covariates included gender, Greek-organization status, ethnicity, age, grade point average (GPA), prepartying status, and total drinks consumed at assessment.

RESULTS
Frequencies, Bivariate Relationships, and Regression Model of BAC Misperception Predicting Negative Consequences
BAC misperception was significantly related to both the composite measure and specific negative consequences experienced due to drinking on the night of assessment (see Table 1). Moreover, there was a similarly significant bivariate relationship between total self-reported drinks on the night of assessment and the composite measure of negative consequences \(r = .198, p < .01\). As presented in Table 2, the explanatory regression model predicting alcohol-consumption-related negative consequences was found to be significant, \(F(8, 213) = 5.23, p < .001, R^2 = .17\). The majority of the covariates significantly accounted for variance in explicating negative consequences. They included Greek-organization status \(\beta = .13, p < .05\), age \(\beta = .21, p < .01\), GPA \(\beta = -.13, p < .01\), prepartying \(\beta = .20, p < .01\), and total drinks consumed at assessment \(\beta = .14, p < .05\). Even after statistically ruling out such critical prognostic factors, BAC misperceptions, specifically the underestimation of actual BAC level \(\beta = .15, p < .05\), emerged as a significant predictor of negative consequences and a new potential risk factor associated with alcohol-consumption-related consequences.

DISCUSSION
The present research extends previous work on perceived intoxication by examining its association with unwanted outcomes resulting from drinking. Results supported the hypothesis of the study: in vivo underestimation of BAC was predictive of participants experiencing event-specific alcohol-consumption-related negative consequences, over and above other consistently predictive factors including total drinks consumed. Specifically, the current study found that becoming rude or obnoxious, missing class or work the next morning, having a higher tolerance for alcohol, and taking foolish risks were all significantly associated with misperceptions of one’s BAC. Thus, findings suggest that perceived intoxication is related to alcohol-consumption-related risk, as the physiological and cognitive impairments of consuming alcohol may subsequently affect a person’s ability to discern their own state of intoxication.

Research focusing on alcohol-consumption-related consequences as the outcome variable is important as the goal of prevention and intervention efforts is the reduction of consequences both to the individual and the surrounding community. While there is a strong link between consumption and consequences, research suggests that these constructs are distinct (Bonin, McCreary, & Sadava, 2000). In fact, a review found that the correlation between consumption and consequences was only in the small to medium range (Sadava, 1985), suggesting not only that consequences are a unique construct but also that explanations for the experiencing of consequences beyond consumption ought to be pursued. The current study revealed that on the event level, total self-reported drinks and alcohol consequences were only correlated at \(r = .198\). This means that the bivariate relationship between BAC misperception and event-level consequences \(r = .186\) was nearly as strong as the relationship between drinks consumed and consequences. The current research broadens our understanding of alcohol-consumption-related consequences by revealing that underestimating one’s intoxication level relates to event-specific consequences independently of the amount of alcohol consumed.

A growing body of research suggests that in addition to consumption levels, negative consequences are also based on psychological factors (e.g., Bonin et al., 2000; LaBrie,
TABLE 1. Percentages of participants experiencing event-level consequences and correlations with BAC misperception

<table>
<thead>
<tr>
<th>Consequence item</th>
<th>Percentage (N = 225)</th>
<th>Correlation with BAC misperception</th>
</tr>
</thead>
<tbody>
<tr>
<td>Composite</td>
<td>80.40</td>
<td>0.186**</td>
</tr>
<tr>
<td>I had a hangover (headache, sick stomach) the morning after.</td>
<td>30.20</td>
<td>0.111</td>
</tr>
<tr>
<td>I took foolish risks when I was drinking.</td>
<td>8.90</td>
<td>0.136*</td>
</tr>
<tr>
<td>I could not remember large stretches of time.</td>
<td>5.30</td>
<td>0.079</td>
</tr>
<tr>
<td>The quality of my work or schoolwork suffered.</td>
<td>10.20</td>
<td>0.084</td>
</tr>
<tr>
<td>I had less energy or felt tired.</td>
<td>60.40</td>
<td>0.038</td>
</tr>
<tr>
<td>My drinking got me into a sexual situation I regret.</td>
<td>4.40</td>
<td>0.057</td>
</tr>
<tr>
<td>I ended up drinking that night when I had planned not to drink.</td>
<td>7.10</td>
<td>0.041</td>
</tr>
<tr>
<td>My physical appearance was harmed.</td>
<td>2.70</td>
<td>0.087</td>
</tr>
<tr>
<td>I said or did embarrassing things.</td>
<td>20.00</td>
<td>0.091</td>
</tr>
<tr>
<td>I felt very sick to my stomach or threw up.</td>
<td>4.90</td>
<td>−0.025</td>
</tr>
<tr>
<td>I did not go to work or missed classes at school the next day because of drinking, a hangover, or illness caused by drinking.</td>
<td>10.70</td>
<td>0.191**</td>
</tr>
<tr>
<td>I did impulsive things I regret.</td>
<td>6.20</td>
<td>0.083</td>
</tr>
<tr>
<td>I gained unwanted weight.</td>
<td>20.00</td>
<td>0.045</td>
</tr>
<tr>
<td>I woke up in an unexpected place.</td>
<td>2.70</td>
<td>0.005</td>
</tr>
<tr>
<td>I spent too much time drinking.</td>
<td>11.10</td>
<td>−0.007</td>
</tr>
<tr>
<td>I felt badly about myself.</td>
<td>2.20</td>
<td>0.101</td>
</tr>
<tr>
<td>I had problems with my boyfriend/girlfriend/spouse, parents, or other near relatives.</td>
<td>5.80</td>
<td>0.003</td>
</tr>
<tr>
<td>I felt like I needed a drink after I’d gotten up the next day (that is, before breakfast).</td>
<td>0.90</td>
<td>0.068</td>
</tr>
<tr>
<td>I drove a car when I knew I had too much to drink to drive safely.</td>
<td>2.70</td>
<td>−0.035</td>
</tr>
<tr>
<td>I neglected my obligations to family, work, or school.</td>
<td>13.80</td>
<td>0.109</td>
</tr>
<tr>
<td>I found it difficult to limit how much I drank.</td>
<td>9.80</td>
<td>−0.082</td>
</tr>
<tr>
<td>I passed out.</td>
<td>9.80</td>
<td>−0.012</td>
</tr>
<tr>
<td>I became very rude, obnoxious, or insulting.</td>
<td>2.70</td>
<td>0.284***</td>
</tr>
<tr>
<td>I found that I needed larger amounts of alcohol to feel any effect, or that I could no longer get high or drunk on the amount that used to get me high or drunk.</td>
<td>19.10</td>
<td>0.177**</td>
</tr>
</tbody>
</table>

*Significant at the p < .05 level.
**Significant at the p < .01 level.
***Significant at the p < .001 level.

TABLE 2. Regression model of BAC misperception predicting negative consequences the night of assessment, controlling for covariates

<table>
<thead>
<tr>
<th>Predictor</th>
<th>B</th>
<th>SE</th>
<th>β</th>
</tr>
</thead>
<tbody>
<tr>
<td>Gender</td>
<td>0.33</td>
<td>0.34</td>
<td>.07</td>
</tr>
<tr>
<td>Greek-organization status</td>
<td>0.68</td>
<td>0.33</td>
<td>.13*</td>
</tr>
<tr>
<td>Ethnicity</td>
<td>0.4</td>
<td>0.35</td>
<td>.01</td>
</tr>
<tr>
<td>Age</td>
<td>0.42</td>
<td>0.13</td>
<td>.21**</td>
</tr>
<tr>
<td>GPA</td>
<td>−0.79</td>
<td>0.40</td>
<td>−.13*</td>
</tr>
<tr>
<td>Preparty status</td>
<td>1.04</td>
<td>0.36</td>
<td>.20**</td>
</tr>
<tr>
<td>Total drinks at assessment</td>
<td>0.09</td>
<td>0.05</td>
<td>.14*</td>
</tr>
<tr>
<td>BAC misperception (BrAC—gBAC)</td>
<td>5.08</td>
<td>2.27</td>
<td>.15*</td>
</tr>
</tbody>
</table>

Note: Gender (1 = Male, 0 = Female); Greek-organization status (1 = Greek, 0 = non-Greek); ethnicity (1 = Caucasian, 0 = non-Caucasian); preparty status (1 = preparty, 0 = nonpreparty). B, Unstandardized regression coefficient.

*p < .05.
**p < .01.

Kenney, & Lac, 2010; LaBrec, Kenney, Lac, Garcia, & Ferraiolo, 2009; Park, 2004; Park & Grant, 2005). Perceived intoxication now appears to be one such factor. If decisions while drinking are impaired or based on inaccurate estimations of one’s drunkenness, drinkers may confidently perform actions that they actually cannot safely complete. That is, perceiving themselves to be relatively less intoxicated than they are, drinkers may place a greater emphasis on current benefits compared with later costs (Vuchinich & Heather, 2003). As a result, they may put themselves in risky or unwanted scenarios that they would otherwise avoid if they accurately comprehended the risks involved with their level of intoxication.

These results can benefit alcohol drinking interventions that seek to reduce alcohol-consumption-related risk by educating students in how to assess their BAC level. Researchers and practitioners who focus on intervening with high-risk college drinking continue to face a paradox: despite experiencing negative consequences, college
students often do not change their drinking behavior (Lee et al., 2010; Mallett, Lee, Neighbors, Larimer, & Turrisi, 2006). Inaccurate perception of intoxication is a risk factor that can be directly addressed during BAC education to motivate students to change their drinking behaviors. In order to address particular risks rather than the nebulous concept of negative consequences, interventions can highlight event-specific unwanted outcomes. For example, participants could learn that misperceptions of intoxication are predictive of health risk behaviors and thus may be more likely to accurately assess their BAC level while drinking, as accurate perceptions would better facilitate adaptive behavior and prevent unwanted outcomes (e.g., becoming rude or obnoxious). When learning that inaccurate perceptions are associated with threats to self (i.e., health and interpersonal risks), students would be motivated to attend to drinking behaviors more vigilantly, process this information more carefully, and make better estimates of their intoxication (see Kunda, 1990). Future research should longitudinally follow students to elucidate how misperceived intoxication affects experienced negative outcomes over time.

Study’s Limitations
The current study should be considered along with some limitations, such as convenience sampling. Future research may wish to recruit participants in different drinking environments both within and outside the college setting. In addition, as this study was a preliminary, cross-sectional examination on misperceived intoxication as a predictor of negative consequences, important characteristics of participants related to this association were not assessed. Future research may wish to examine this relationship with regard to established environmental influences on drinking behaviors (Clapp et al., 2006) or to longitudinally investigate participants’ decision-making processes in various contexts and roles to seek meaningful differences or similarities in drinking situations. These data would improve the generalizability of current findings. Moreover, while it is speculated that consequences arose from BAC misperceptions due to poor judgments of one’s abilities, this explanation was not directly assessed. Future research on this relationship should incorporate questions that examine in vivo participants’ confidence in navigating situations that are risky while drinking. For example, researchers could ask participants if they believe their current alcohol consumption would affect their ability to avoid foolish risks that night, refrain from being rude or obnoxious, or attend class or work the next day. Beliefs that they could navigate these situations followed by experiencing negative outcomes in these domains due to alcohol consumption would corroborate the proposed mechanism between BAC misperceptions and negative consequences.

CONCLUSION
Much concern over risky undergraduate alcohol use can be attributed to the negative consequences associated with collegiate drinking. This research provides useful information that can be incorporated into undergraduate alcohol drinking education and intervention efforts by offering a new target for alcohol consumption intervention. The primary strength of our event-level methodology is its helpfulness in modeling the relationship between in vivo behaviors and consequences, as specific consequences can be directly linked to specific drinking occasions (Neal & Carey, 2007). Thus, interventions seeking to reduce negative consequences should directly address the acute risk associated with BAC misperceptions.

Declaration of Interest
The authors report no conflicts of interest. The authors alone are responsible for the content and writing of the article.

RéSUMÉ
Les sous-estimations de taux d’alcoolémie annoncent des événements spécifiques aux conséquences négatives
La présente étude a cherché à établir la perception erronée in vivo du taux d’alcoolémie comme facteur prédictif d’événements spécifiques aux conséquences négatives liés à l’alcool. Les participants (N = 225 ; 56.4% d’hommes) étaient des étudiants qui avaient bu au moins une boisson alcoolisée dans les deux heures avant l’évaluation. Au printemps 2010, les participants ont rempli un questionnaire, ont donné un échantillon d’haleine pour évaluer la teneur en alcool, et plus tard complété un questionnaire de suivi. La sous-estimation d’alcoolémie était un facteur prédictif d’événements spécifiques, aux conséquences négatives liés à l’alcool, au-delà d’autres facteurs y compris la quantité de boissons consommées. Cette étude met en évidence la nécessité de stratégies éducatives plus ciblées sur le taux d’alcoolémie dans les universités américaines.

RESUMEN
Subestimaciones acerca de la concentración de alcohol en la sangre predicen consecuencias negativas sobre eventos específicos
El presente estudio buscó establecer percepciones erróneas, in vivo, sobre la tasa de alcoholemia (BAC, por sus siglas en inglés) como predictora de consecuencias negativas relacionadas con el alcohol sobre eventos específicos. Los participantes (N = 225, 56.4% hombres) fueron estudiantes universitarios quienes habían consumido al menos una bebida alcohólica durante las dos horas antes de la evaluación. Durante la primavera de 2010, los participantes completaron un cuestionario, suministraron una muestra de aliento para evaluar el contenido de alcohol, y luego volvieron a completar un cuestionario de seguimiento. La subestimación de la tasa de alcoholemia fue predictora de consecuencias negativas relacionadas con el alcohol sobre eventos específicos, por
encima de otros factores, como el número total de bebidas alcohólicas consumidas. Este estudio resalta la necesidad de implementar estrategias de educación sobre la tasa de alcoholismo más enfocadas dentro de universidades estadounidenses.

THE AUTHORS

Sean P. Grant obtained Summa Cum Laude from the Loyola Marymount University in 2010, with Honors Bachelor’s Degrees in Psychology and philosophy. As a Research Assistant at the Heads UP research lab, he has examined risk factors for and prevention of undergraduate alcohol abuse. At present, he is an M.Sc. candidate in Evidence-Based Social Intervention at the University of Oxford. He is currently investigating the reporting quality of randomized controlled trials of psychosocial interventions.

Joseph W. LaBrie obtained a Ph.D. in clinical psychology in 2002 from the University of Southern California, in addition to holding a M.Div. in theology and an M.S. in mathematics. He is currently the Special Assistant to the President, Associate Professor of psychology, and Director of the Heads Up research lab at the Loyola Marymount University. His research interests are focused on prevention and intervention efforts for risky behaviors among young adults and adolescents. Dr. LaBrie has published over 75 research articles in this area as well and has been the recipient of numerous private and federal grants to study young adult health behaviors and approaches to prevention and intervention.

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GLOSSARY

Alcohol-consumption-related negative consequences: Unwanted outcomes experienced due to the consumption of alcohol.

Blood alcohol concentration (BAC): A metric of the amount of alcohol concentration within the bloodstream, generally measured as a percentage of the volume of alcohol in a liter of blood in the body.

Guessimated BAC (gBAC): Perceived intoxication as measured by the BAC level that a drinker perceives himself/herself to currently have.

REFERENCES


