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Drinking outcome expectancies and normative perceptions of students engaged in university sport in England

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Abstract

This study examined whether students engaged in university sport have different drinking outcome expectancies and normative beliefs than students who are not engaged in university sport. A cross-sectional survey of university students (HE) in England in 2008-2009 was undertaken. A questionnaire battery including the Drinking Expectancies Questionnaire (DEQ) and a measure of Normative Beliefs was completed by 770 students from seven universities across England. Responses from 638 students who were not abstaining from alcohol were analysed. Students engaged in university sport have significantly higher drinking expectancies of assertion compared to students not engaged in university sport. Moreover, students engaged in university sport consistently report higher personal alcohol consumption and higher perceptions of consumption in those around them than students not engaged in university sport. Both assertion and the perception that students around them drink heavily provide only a partial explanation for why students engaged in university sport drink more than those not engaged in university sport. Further research is required to identify the reasons for heavy drinking among students involved in university sport in England.

Keywords: Alcohol consumption, sport, university students, drinking outcome expectancies, normative beliefs, normative misperceptions

Drinking outcome expectancies and normative perceptions of students engaged in university sport in England

Contemporary research among students in England has revealed that those who participate in university sport are at greater risk of alcohol-related harm and drink more frequently and in higher quantities than those who do not (Partington et al., 2012). In view of these recent findings it is important that effective interventions and treatments are developed for heavy drinking students engaged in university sport. To enable the development of targeted interventions, the reasons for high-risk and harmful drinking need to be more fully understood (Borsari, Murphy, & Barnett, 2007). Previous research has revealed that what an individual expects from consuming alcohol (Meade Eggleston, Woolaway-Bickel, & Schmidt, 2004) and what they perceive other's drinking behaviour to be (normative beliefs; McAlaney & McMahon, 2007) play a key role in the prediction of student drinking behaviour. These two factors might serve to explain differences in drinking behaviour between students who participate in university sports and those who do not. This is because personal alcohol consumption is believed to be best predicted by relevant reference groups (Baer, Stacey, & Larimer, 1991) which may differ between students engaged in university sport and those not. Additionally, it is possible that the unique social situations within which students involved in university sport consume alcohol (Sparkes, Partington, & Brown, 2007) may influence the alcohol outcome expectancies that they hold and in turn their drinking behaviour. In support of this argument both Partington et al. (2012) and Martens, Dams-O'Connor, and Beck (2006a) have suggested that greater understanding of the social situations within which students involved in university sport consume alcohol may help to explain their drinking behaviour.

Outcome expectancy theory suggests that individuals' behaviour, and behaviour change, is determined by what they anticipate the consequences of their behaviour to be (Bandura, 1986). Alcohol outcome expectancies can be both positive (e.g. 'I expect to be a fun person if I have a few drinks') and negative (e.g. 'I expect to feel awful the next day if I have a few drinks'; Jones, Corbin & Fromme, 2001) and are influenced directly and indirectly (Jones et al., 2001) by family, peers and the surrounding culture (Abrams & Niaura, 1987).

Positive alcohol expectancies have previously been found to be associated with the quantity of alcohol consumption in student populations (Meade-Eggelstone et al., 2004; Young, Connor, Ricciardelli, & Saunders, 2006) and heavy episodic drinking (Morawska & Oei, 2005; Vik, Celluci & Ivers, 2003). Research has found that students in the USA classified as heavy episodic drinkers expect both heightened positive feelings and a reduction in social anxiety when drinking alcohol (Vik et al., 2003). In the UK a study by Orford, Krishnan, Balaam, Everitt and Van der Graaf (2004) comparing heavy and light drinkers found differences in expectancies between the two groups, with heavy drinkers scoring higher on tension reduction, sexual enhancement and dependency. Jones (2003) has discussed how psychological theory, including expectancy theory, may help to explain excessive drinking on UK student campuses and contribute to its amelioration.

At present, research into the alcohol expectancies of students engaged in university sport is limited and confined to the USA (Zamboanga, Horton, Leitkowski, & Wang, 2006; Zamboanga & Ham, 2008). In a longitudinal study of female student-athletes, positive expectancies predicted hazardous drinking, especially in relation to the frequency and quantity of alcohol consumed (Zamboanga et al., 2006). Also, a more recent study using the same sample noted a significant correlation between negative expectancies and heavy alcohol

use in certain contexts (e.g. convivial and negative-coping contexts; Zamboanga and Ham, 2008). No studies as far as we are aware have further examined differences in drinking expectancies between students engaged in university sport and those not. This is despite existing research revealing that these subgroups consume alcohol differently (Partington et al., 2012).

In addition to drinking expectancies, it is possible that normative beliefs play a role in the prediction of student drinking behaviour (McAlaney & McMahon, 2007), and therefore a comparison of the normative beliefs of students involved in university sport and students not involved in university sport may help to explain reported differences in consumption levels of UK students in these two groups. It is possible that aspects of the “drinking culture” that students involved in university sport are exposed to lead to even higher levels of consumption than the normative influences affecting the drinking of students not involved in university sport. Normative beliefs have been widely used in the USA to test the perceptions of alcohol consumption in American student samples, based on Bandura’s (1986) social cognitive theory that observing the behaviour of others influences one’s own behaviour. Borsari and Carey (2001) reviewed several studies examining American college drinking and found that the majority of students perceive other students to drink more than them.

Studies exploring the role of normative beliefs in the perceptions of drinking levels in student populations have also been carried out outside of the USA, for example, by Kypri and Langley (2003) in New Zealand and McAlaney and McMahon (2006) in the UK, with similar findings to Borsari and Carey (2001). McAlaney and McMahon (2007) found that as the social distance increased from students the higher they perceived alcohol intake to be. A further interesting finding was that level of misperception was associated with personal alcohol consumption in students, with those who drank the most showing the greatest degree of misperception of others’ drinking. As a result they suggested that these students use

perceptions of others' drinking to rationalise their own heightened consumption (McAlaney & McMahon, 2007). This is of particular relevance to the present study given that Partington et al. (2012) found that students engaged in university sport consume alcohol more frequently, in greater quantities and engage in heavy episodic drinking more often than those not engaged in university sport. It is difficult to make a direct comparison to data from the USA as findings regarding alcohol consumption in American college athletes and non-athletes are ambiguous (Martens et al. 2006a). However, Wechsler et al. (1997) reported that a greater percentage of American college athletes than non-athletes reported heavy episodic drinking and frequent episodic drinking. These findings in relation to heavy episodic drinking are mirrored by UK data (Partington et al., 2012).

Research into the normative beliefs of those involved in university sport is limited. However, in the USA Martens and colleagues (2006b) found that college athletes showed less accuracy when estimating alcohol consumption of non-athlete friends than athlete friends, typically overestimating consumption of non-athlete friends. The same study found that whilst female athletes' personal consumption was predicted by their normative perceptions of friends' consumption irrespective of athlete status, male athletes' personal consumption was only predicted by their perceptions of their athlete friends' consumption. There is currently no UK comparison data available.

In conclusion, the bulk of alcohol expectancy research has been conducted in US student populations where the drinking and sports cultures are very different from England. For example the national minimum legal drinking age in the USA is 21 years whereas in England it is 18 years. In addition Greek letter societies (Fraternities and Sororities) are prevalent across American college campuses and membership is associated with high levels of alcohol consumption (Cashin, Presley & Meilman, 1998). No such societies exist in

English Universities. Despite this, research has revealed that students from UK universities drink double the amount of alcohol and binge drink twice more often than students from American universities (Delk & Meilman., 1996). In terms of the university sport culture, in the USA college sport participants are under high public scrutiny (Marcello, Danosh & Stolberg, 1989) and there are more recognised links to professional sport. Due to these cultural differences, and because university students in England, and particularly those who participate in team sports, have been identified as a high-risk group for alcohol related harm, it is important that alcohol expectancy research is conducted with a student sample in England (Partington et al., 2012). Additionally, there is a need to look further at the normative beliefs of students in England and in particular students engaged in university sport as McAlaney and McMahon (2007) suggest that normative-belief interventions would make a useful contribution to intervention design. The aim of this paper is to compare the drinking outcome expectancies and normative beliefs/ misperceptions of students engaged in university sport and those not in England.

Method

Sample

As part of this multisite investigation seven Higher Education (HE) institutions were purposively sampled to represent varied commitment to sport. This was determined by their finishing positions in the inter university sport competition league table the year prior (2006-2007). Institutions from the top, middle and bottom of this table were recruited. Additionally, universities were recruited to represent a variety of degree types (sciences and arts) and geographical locations.

From the seven HE institutions recruited 770 students successfully completed the questionnaire battery. Only responses from those who found the DEQ and normative beliefs

items applicable were included. Responses from abstainers were therefore removed (N = 64). Of the abstainers removed 14 were involved in university sport and 50 were not. The final sample for analysis consisted of 638 students who were current drinkers. Characteristics of this sample are shown in Table 1. Of the 638 students recruited 161 identified themselves as playing for a university sports teams which could have been either intramural or inter-university.

TABLE 1 ABOUT HERE

Procedure

Ethical approval was granted from each institution and data collection took place between March, 2008 and March, 2009. Periods where normal patterns of student drinking would be affected were avoided (e.g. exam period or fresher's week). All participants provided informed consent and took approximately 15 minutes to complete a questionnaire booklet (containing six questionnaires) either at the start or end of a lecture in the lecture theatre.. Previous research has revealed that this protocol yields excellent response rates (Pickard, Bates, Dorian, Greig, & Saint, 2000; Webb, Ashton, Kelly, & Kamali, 1996, 1997).

The same Research Assistant administered and collected the questionnaire booklets at each institution. This ensured consistency in the data collection protocol. Students were not awarded any course credit for taking part in the study. Owing to the sensitive nature of the some of the questions within the booklet (e.g. "I am addicted to alcohol) students were made aware that the data that they provided would remain confidential. It was hoped that reiteration of this point would promote honesty in participant responses.

Measures

Demographic and background information Students provided information on their sex, age, ethnicity, accommodation status, degree course, year of study, university sports teams/clubs

they played for, highest level of competition, recent injury, membership of other university clubs and societies, whether they had ever drunk alcohol, whether or not they were currently abstinent from alcohol.

Drinking Expectancy Questionnaire (DEQ; Young & Knight, 1989) This instrument measures outcome expectancies for alcohol consumption, (i.e. what the person expects the consequences of drinking to be.) The DEQ subscales are: assertion, affective change, dependence, sexual enhancement, cognitive change, and tension reduction. An advantage of this tool is that it assesses both the positive and negative outcomes of alcohol consumption. DEQ items are scored on a 1-5 five point Likert scale. An average is taken for each subscale, meaning that the highest score that can be achieved is five. Higher scores are indicative of stronger alcohol expectancies. Young and Oei (1996) have found adequate Cronbach alpha coefficients for all DEQ subscales (Range = 0.70 – 0.86) other than cognitive change (0.58).

Normative belief measure (McAlaney & McMahan, 2007) The purpose of this 12-item tool was to measure how much alcohol the participant believes others drink in comparison to themselves (McAlaney & McMahan, 2007). The measure asked students about perceptions of drinking frequency, drinking quantity and frequency of drunkenness applied to (i) ‘your closest friends’, (ii) ‘the average student of your age’ and (iii) ‘the average person your age in the UK’

Statistical analysis

All questionnaire data were inputted into PASW (V.18). The level of statistical significance was set at 1% for all comparisons in order to correct for the effects of multiple comparisons. The dependent variables in the analyses were drinking expectancies (assertion, affective change, dependence, sexual enhancement, cognitive change, and tension reduction) and three aspects of normative beliefs (beliefs about the drinking of ‘your closest friends’, (ii)

‘the average student of your age’ and (iii) ‘the average person your age in the UK’) and misperceptions). The independent variable was participation in sport.

Measures of central tendency and dispersion for DEQ and normative beliefs scores are reported as means and standard deviations. Differences between groups on dependent variables were determined using independent t-tests and analyses of covariance in the case of more than two groups. Relationships between two variables were examined using Pearson’s product moment correlation coefficient. Multiple regression was used to identify variables predictive of assertion. Effects sizes are calculated using Pearson’s correlation coefficient r .

Results

Drinking Expectancies

When comparing students engaged in university sport against students who did not compete in university sport, no significant differences were found in expectancies of affective change, tension reduction, dependence, sexual enhancement and cognitive change. However, for the DEQ subscale “Assertion” students engaged in university sport (Mean = 3.5, SD = 0.6) were found to have higher alcohol expectancies than those not engaged in university sport (Mean = 3.3, SD = 0.7; $t = -2.68$, $df = 568$, $P < 0.01$, $r = 0.11$).

TABLE 2 ABOUT HERE

Given the differences in assertion found between students engaged in university sport and those not, it was deemed necessary to conduct a multiple regression to account for baseline differences between these subgroups in other variables. Regression analysis was seen as particularly important because associations between assertion and participation in sport might have been confounded by other variables that were also associated with assertion (e.g. age, ethnicity, accommodation, degree studied and sex). Therefore, it was necessary to

extract the effects of sport engagement independent of other predictors of assertion. Potential predictor variables were those that were significantly different between students engaged in university sport and those who were not and showed significant relationships with assertion at the $P < 0.1$ level.

Overall the multiple regression model significantly predicted assertion ($F(13, 554) = 8.196, p < 0.005$) but explained only 14.2% of the variance (Adjusted $R^2 = 0.14$).

Additionally, the analysis revealed that sex, engagement in sport ($B = 0.01, t = 0.21, P = 0.837$), age, accommodation, degree studied were not independent predictors of assertion. However, students of white ethnic origin experienced greater increases in assertion when drinking than those of black ethnic origin ($B = -0.61, t = -6.21, P < 0.005$).

Normative perceptions

As can be seen in Table 3, regardless of engagement in sport, students perceived their personal alcohol consumption to be lower than that of others. Individuals rated those around them as drinking more frequently, in greater quantities and being drunk more often than themselves. With the exception of people their own age who were not studying at university, this perception of heightened drinking in others increased as the social distance from the student increased. Personal alcohol consumption was most closely matched by students closest to them (e.g. friends).

TABLE 3 ABOUT HERE

In keeping with this finding, regardless of engagement in sport, personal alcohol consumption was found to correlate with that of closest friends, student peers and other individuals. Moreover, the strength of the association between personal consumption and others was found to increase with the proximity to the individual. Table 4 presents this information.

TABLE 4 ABOUT HERE

Table 3 indicates that students engaged in university sport perceived their own personal alcohol consumption to be higher than that of individuals who did not play sport for: number of days alcohol was consumed ($t = -3.625$, $df = 321.651$, $P < 0.01$, $r = 0.20$), number of drinks consumed on a night out ($t = -3.519$, $df = 626$, $P < 0.01$, $r = 0.14$), and frequency of drunkenness ($t = -4.469$, $df = 324.096$, $P < 0.01$, $r = 0.24$).

Students engaged in university sport also perceived their friends' alcohol consumption to be higher for: number of drinks consumed on a night out ($t = -2.961$, $df = 626$, $P < 0.01$, $r = 0.10$) and frequency of drunkenness ($t = -5.206$, $df = 370.722$, $P < 0.01$, $r = 0.26$) than students not engaged in university sport but there were no differences in perceptions of number of days alcohol was consumed.

No differences were found between students engaged in university sport and those not in their perceptions of the average students' frequency or quantity of drinking. However, a significant difference was found between students engaged in university sport and those not in their perceptions of frequency of drunkenness of the average student ($t = -4.264$, $df = 390.542$, $P < 0.01$, $r = 0.20$).

No differences were found between students engaged in university sport and those not in their perceptions of the frequency, quantity and frequency of drinking of the average person their age.

Normative misperceptions

The next stage in the analysis concerns the extent to which students' perceptions of others' drinking are correct or incorrect (i.e., the degree of misperception). Working on the assumption that the means of students' self-reports of alcohol consumption at each institution

equate to the actual norms for students at that institution, we worked out the degree of misperception by examining the difference between students' perceptions of their fellow students' drinking and the actual norms for student drinking at each university.

No differences between students engaged in university sport and those not were found for misperception of frequency or quantity of drinking or frequency of drunkenness. See Table 3 for data on normative misperceptions.

Discussion

The purpose of this study was to identify potential explanations as to why students who participate in university sport drink alcohol more excessively than students not involved in university sport in England. More specifically, this study aimed to determine whether there are differences between these student subgroups in drinking expectancies and alcohol normative perceptions. The findings of the study suggest that drinking expectancies and normative perceptions provide only a partial explanation for the difference in alcohol consumption between the two groups.

From our drinking expectancies data, only a difference in expectancies of assertion was found between students who engaged in university sport and those who did not, with students engaged in university sport having higher expectancies of assertion after drinking than those who were not engaged in university sport. Assertion is by definition a positive drinking expectancy. Items assessing assertion on the DEQ include, '*drinking makes me outgoing and friendly*,' '*if I'm drinking it's easier to express my feelings*' and '*I am less discreet if I drink alcohol.*' As such it is possible that the more alcohol that students who participate in sport consume, the more assertive they expect to become, as described in a recent report to the Alcohol Education Research Council (AERC) (Partington et al., 2010, P.76). It has also been suggested that students who hold positive expectancies are more likely

to consume more alcohol, more often and become more dependent than individuals who hold negative expectancies (Oei & Jardim, 2007; Young et al., 2006; Meade Eggleston, 2004). A consequence of the expectation of assertion and the resultant heavy alcohol consumption can be detrimental to health as it can lead to the development of psychological problems such as depression, anxiety, and other physical problems, especially in males (Ham & Hope, 2003).

It is also conceivable that students engaged in university sport have higher assertion expectancies than students not engaged in university sport because of the different drinking contexts on which they were reflecting while completing the DEQ. In support of this conjecture previous research by MacLachy-Gaudet and Stewart (2001) found that the context students drink within influences the type of outcome drinking expectancies they have. For example, female students at a university in Canada had higher arousal expectancies in a sexual context and elevated global positive affect expectancies within a social situation. It is widely accepted that a unique aspect of the culture of UK university sport involves post-match drinking and social events which are characterised by excessive group drinking, drinking forfeits, streaking, etc. (Sparkes et al., 2007). As such, students engaged in university sport may be more widely exposed to contexts where their peers engage in assertive behaviours when drinking than students who are not engaged in university sport, which could in turn lead them to have higher expectancies of this type of behaviour in themselves.

Despite this explanation being of intuitive appeal it must be noted that when we ran a multiple regression analysis to determine whether engagement in university sport was still predictive of assertion when other background variables had been accounted for, results revealed that it was no longer a predictor. On this basis, it is not possible to draw firm conclusions about the causes of the association between sport participation and assertion without considering other moderating variables such as age, sex, accommodation, degree

studied and ethnicity. Consequently, the higher levels of assertion expectancies of students who take part in university sport may not be the result of sport participation itself but the fact that they are more likely to be younger, live on-campus accommodation, study sport and be of white ethnicity, than students not engaged in university sport. These factors might influence the social situations within which students drink and as a result the assertion expectancies that they hold. It is also interesting to note that additional analyses of the data (which are not reported within the results but are available from the first author upon request) revealed that students engaged in university sport displayed similar drinking behaviours and perceptions of others drinking to students who were not involved in university sport but who held high assertion outcome expectancies. These subgroups were only found to differ significantly in the number of alcoholic drinks they thought an average person their age in the UK would normally drink during a night out in a pub or a club and how many days a month they thought their closest friends and the average student their age drank enough alcohol to become drunk.

Interestingly the only variable that was independently predictive of assertion expectancies was ethnicity, with those of white ethnic origin experiencing greater increases in assertion expectancies when drinking than those of black ethnic origin. Greenfield, Harford and Tam (2009) suggested that differences in culture might be crucial in the development of alcohol expectancies and the associated drinking patterns. Oei and Jardim (2007) compared the alcohol related behaviours of Asian and Caucasian students in Australia, a drinking culture similar to England. They established that Caucasian students held more positive expectancies than those of Asian ethnicity. Caucasian students also drank more regularly and consumed greater amounts of alcohol both annually, and in one episode (Oei & Jardim, 2007). Findings of the US National Alcohol Survey (1995), also found that individuals of white origin drank more heavily than those of black origin. When those of black ethnicity

reported that they drank heavily, they were then more at risk of becoming alcohol dependent (Greenfield, Harford & Tam, 2009). High positive alcohol expectancies such as assertion, could therefore lead to health problems of a physical and psychological nature for the students engaged in university sport who drink heavily in the present study population.

It is also prudent to acknowledge that expectancies of affective change, tension reduction, dependence, sexual enhancement and cognitive change were not found to differ significantly between students involved in university sport and those not. This may be because these expectancies are relevant to the wider student culture and are not specific to sport. As such, it is possible that the DEQ utilised within this study lacks the sensitivity to identify differences between students engaged in university sport and those not engaged in university sport in drinking outcome expectancies. Additionally, it is possible that there is less of a gulf between university culture and university sport culture in England than we might think. For example, Heather et al. (2011) found that nearly 61% of students in England drank to at least hazardous levels.

Beliefs about others' drinking behaviours are another major contributor to heavy drinking among students (Borsari & Carey, 2001) and our data on normative perceptions may help to explain why students engaged in university sport drink more than students not involved in university sport. Comparisons between students engaged in university sport and those not revealed that students engaged in university sport consistently reported that they drank significantly more frequently, in greater quantities and were more often drunk than students who were not engaged in university sport (see table 3). More interestingly, students engaged in university sport perceived that their friends' alcohol consumption was higher for number of days that alcohol was consumed, number of drinks consumed on a night out and frequency of drunkenness than students not engaged in university sport. In addition, students engaged in university sport perceived the average student's frequency of drinking and

drunkenness to be higher than that of students not engaged in university sport. However, no differences were found between students engaged in university sport and those not in their perceptions of the frequency, quantity and frequency of drinking of the average person their age.

Alcohol consumption was perceived to be greater in the average university student than amongst friends for both students engaged in university sport and those not. Moreover, additional analysis revealed that personal alcohol consumption was most strongly correlated with perceptions of close friends' consumption in both student groups. This supports previous research (Baer et al., 1991; (Martens et al., 2006; McAlaney & McMahon, 2007) and suggests that individuals rationalise their personal alcohol consumption by perceiving everybody else to drink more than them.

While our research supports previous findings, what needs to be explained is why students engaged in university sport perceive those around them (closest friends and the average student) to drink more heavily than students not engaged in university sport do. One explanation might stem from the measure of normative perceptions used in this study. When completing the items on other peoples' drinking, participants are asked in prefixes to think of the 'average student their age' or 'most of their closest friends.' The openness to interpretation of the questions means that they may be highly susceptible to different subgroup influences. For example, it is likely that students who competed in sport responded to these questions with other students who competed in university sport in mind as one aspect of athletic identity is that their friendships are populated by other sports people (Brewer, Van Raalte, & Linder, 1993). Given their identity as an athlete they might have found it difficult to then consider the 'average student' outside of those that competed in sport. Consequently, when answering these questions they may have been reflecting on their friends' and students'

drinking behaviour within the culture of university sport which is characterised by group drinking, partaking in drinking games and excessive alcohol consumption (Sparkes et al., 2007). This may explain why students involved in university sport perceive their friends and other students to drink more than those not involved in university sport. In accordance with the principles of social cognitive theory (Bandura, 1986), sport students' perception of the higher alcohol consumption of those around them might then legitimise their own consumption, thus explaining why they drink more than students not engaged in university sport. However, it is important to acknowledge that although there is intuitive appeal in this explanation in a sample of athletes from the USA it was found that athletes perceived their close friends who were not athletes to drink more than their close friends who were athletes (Martens et al. 2006b).

Given that students engaged in university sport differed in their perceptions of others' consumption of alcohol compared with students not involved in university sport, it was necessary to determine whether they were accurate in these perceptions. In the sample as a whole, misperception, regardless of involvement in sport, was found for 'frequency of drinking' 'quantity of drinking' and 'frequency of drunkenness', with 'frequency of drunkenness' being misperceived the highest. This is consistent with data from the University of Paisley students who perceived other students to get drunk more than twice as often as they did themselves (McAlaney & McMahon, 2007).

Contrary to what we expected, no differences were found between students engaged in university sport and students not engaged in university sport in their misperceptions of frequency of drinking, quantity of alcohol consumed or frequency of drunkenness. The lack of differences here might be attributable to the method used to calculate misperceptions which involved determining the difference between students' perceptions of their fellow

students' drinking and the actual norms for student drinking at each university. It is possible that misperception would have been better calculated by comparing personal consumption with that of closest friends.

Our data suggests that misperceptions of alcohol consumption in others does not explain differences in drinking between students involved in university sport and those not involved. This has implications for the use of social norms interventions. Social norm interventions have increased in popularity particularly within the USA and New Zealand (John & Alwyn, 2010; Moireira, Smith, & Foxcroft, 2010) and work on the premise that students' excessive alcohol consumption is a function of them incorrectly over estimating what their student peers drink. As such social norm interventions seek to provide students with feedback on what their peers actually drink. However, it is apparent that students engaged in university sport are no different in their misperceptions of what their peers drink compared to students not engaged in university sport. As such, it is possible that this type of intervention would be no more effective with students involved in university sport than it would be with students who were not involved in university sport..

A particularly interesting finding from this study is the discrepancy between the alcohol outcome expectancy results and the normative beliefs results. More specifically, we found that personal alcohol consumption and perceptions of others drinking were higher in students involved in university sport than those not. However, limited differences were found between these subgroups in the alcohol outcome expectancies that they hold. This appears to suggest that holding similar alcohol outcome expectancies can lead to different alcohol related behaviours and perceptions. This finding may raise question marks over the effectiveness of using alcohol outcome expectancies to explain drinking behaviour in students involved in university sport.

Limitations of the study include the fact that we did not gather information regarding whether or not students were involved in sport outside of the university context or the extent of sport participation in the students engaged in university sport. This information would have been useful as previous research has revealed that the level of involvement that an individual has within university sport is associated with their use of alcohol such that those in positions of leadership have reported consuming more alcohol than those not (Leichliter, Meilman, Presley, & Cashin, 1998). Additionally, although we collected data over the course of a whole academic year, we did not record at which time of the season the students engaged in university sport were completing the questionnaire at which may have confounded the results. It would be fruitful for future research to examine the difference between students engaged in university sport and those not in drinking motives as previous research has revealed that the relationship between drinking outcome expectancies and alcohol consumption are mediated by alcohol motives (Kuntsche, Knibbe, Engels, & Gmel, 2007). There is evidence to suggest that students engaged in university sport are motivated to drink alcohol for positive reinforcement, as a means of sport-related coping and for the team/group (Martens & Martin, 2010). However, it is unclear how motives for the consumption of alcohol may differ to those not engaged in university sport.

In conclusion, this study revealed that students engaged in university sport have higher expectancies of assertion when drinking than students not engaged in university sport although this was not found to be a consequence of participation in sport itself. . Although the reasons for higher assertion alcohol outcome expectancies in students' who participate in university sport are unclear information on their assertion expectancies could be used to better inform future intervention studies. More specifically, it is known that positive outcome expectancies are related to the heightened consumption of alcohol in college students (Meade-Eggelstone et al., 2004). As such, interventions may seek to make students involved

in university sport more aware of the negative outcomes of excessive alcohol consumption. While college athletes have been found to be more likely to experience a range of negative consequences from the consumption of alcohol than those not involved in university sport (e.g. being hurt/injured; Leichter et al., 1998) there may be benefit in educating them on the potentially damaging effect that the consumption of alcohol can have on sports performance (Martens et al., 2006a). This may increase their negative outcome expectancies related to alcohol and reduce their consumption (Jones, 2004).

Further findings from our study revealed that students engaged in university sport perceived that their friends drank more frequently, in greater quantities and were more often drunk than those not engaged in university sport. In addition, perceptions of the average student's frequency of drinking and drunkenness were higher for students engaged in university sport than students not engaged in university sport. Despite these findings no differences were found between students engaged in university sport and those not in their misperceptions of others' drinking. Research examining the effectiveness of interventions for the reducing alcohol consumption within student-athletes is limited (Martens et al., 2006a). Findings from this study may have ramifications for the use of social norm alcohol interventions with students involved in university sport as we found no differences in misperceptions of alcohol use between this student subgroup and those not involved in university sport. However, in a rare study with student-athletes Perkins and Craig (2006) found a social norms intervention to be highly effective in reducing alcohol consumption and the negative consequences associated with the consumption of alcohol in student-athletes. Despite this, it is unknown whether this intervention would be more effective with those involved in university sport than those not involved as they demonstrated no difference in misperception.

We conclude that alcohol consumption in students engaged in university sport is higher than those not engaged in university sport because of a range of interacting factors. More specifically, in their systematic review of college student-athletes drinking Martens and colleagues (2006a) explained that student-athletes' alcohol consumption may be a product of pressure/stress related to their sport, peer/team related influences (e.g. expectations of peers in relation to alcohol and competition amongst them) and the cultural relationship between alcohol and athletes. In support of cultural influences research conducted within Australia revealed that alcohol consumption was higher in sports people if their team was in receipt of sponsorship from the alcohol industry (O'Brien & Kypri., 2008). There may also be benefit in examining the role that personality plays in the consumption of alcohol in students involved in university sport as previous research has revealed that athletes report higher sensation seeking than non-athletes (Schroth, (1995). It is clear that the explanation for higher alcohol consumption amongst those involved in university sport in England is complex. Based on the findings of this study we suggest that greater exploration of the association between university sport culture and drinking behaviour is required in order to more effectively inform interventions.

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	Sport (n=161)	Non-Sport (n=476)	Total (n=637)
Age (Mean, SD)	20.0 (1.9)	22.6 (6.5)	22.0 (5.8)
Sex			
Male	79 (49.1)	174 (36.6)	253 (39.7)
Female	82 (50.9)	301 (63.4)	384 (60.3)
Ethnicity			
White	145 (90.1)	373 (78.4)	519 (81.3)
Black	5 (3.1)	61 (12.8)	66 (10.3)
Chinese	1 (0.6)	3 (0.6)	4 (0.6)
Mixed	4 (2.5)	20 (4.2)	24 (3.8)
Asian	3 (1.9)	13 (2.7)	16 (2.5)
Other	3 (1.9)	6 (1.3)	9 (1.4)
Accommodation			
Family	33 (20.5)	178 (37.4)	211 (33.1)
On-campus	62 (38.5)	99 (20.8)	161 (25.2)
Off-campus	62 (38.5)	126 (26.5)	189 (29.6)
Other	4 (2.5)	73 (15.3)	77 (12.1)
Year of Study			
One	83 (51.6)	247 (52.0)	330 (51.8)
Two	49 (30.4)	137 (28.8)	186 (29.2)
Three	29 (18.0)	91 (19.2)	121 (19.0)
Degree			
Science	40 (24.8)	86 (18.1)	127 (19.9)
Arts	18 (11.2)	202 (42.5)	220 (34.5)
Sport	103 (64.0)	187 (39.4)	290 (45.5)

Table 1: Sample Characteristics

	Sport	Non-sport	Total
Assertion	3.5 (0.6)**	3.3 (0.7)	3.4 (0.7)
Affective change	2.0 (0.6)	2.0 (0.6)	2.0 (0.6)
Dependence	2.0 (0.6)	2.0 (0.6)	2.0 (0.6)
Sexual enhancement	3.4 (0.6)	3.5 (0.6)	3.4 (0.6)
Cognitive change	2.1 (0.6)	2.0 (0.6)	2.0 (0.6)
Tension reduction	2.7 (0.7)	2.7 (0.9)	2.7 (0.8)

** P<0.01

Table 2: Mean DEQ scores

	Sport	Non-sport	Total
Perceived personal consumption			
Frequency per month	5.6 (1.4)**	5.1 (1.7)	5.3 (1.7)
No. of drinks on a night out	5.1 (1.7)**	4.5 (1.7)	4.7 (1.7)
Frequency of drunkenness days per month	4.6 (1.7)**	3.9 (2.0)	4.1 (1.9)
Perceived consumption in close friends			
Frequency per month	6.2 (1.2)*	5.9 (1.4)	6.0 (1.4)
No. of drinks on a night out	5.5 (1.6)**	5.1 (1.6)	5.2 (1.6)
Frequency of drunkenness days per month	5.6 (1.3)**	4.9 (1.7)	5.1 (1.7)
Perceived consumption in other students			
Frequency per month	6.9 (0.8)*	6.7 (1.1)	6.8 (1.1)
No. of drinks on a night out	5.9 (1.4)*	5.5 (1.6)	5.6 (1.6)
Frequency of drunkenness days per month	6.2 (1.0)*	5.8 (1.4)	5.9 (1.3)
Consumptions in others the same age			
Frequency per month	6.4 (0.9)	6.4 (1.1)	6.4 (1.0)
No. of drinks on a night out	5.4 (1.5)*	5.1 (1.4)	5.2 (1.5)
Frequency of drunkenness days per month	5.6 (1.1)	5.4 (1.5)	5.5 (1.4)
Frequency misinterpretation	-1.8 (0.9)	-2.0 (1.3)	-1.9 (1.2)
Quantity misinterpretation	-1.4 (1.6)	-1.3 (1.6)	-1.3 (1.6)
Drunk misinterpretation	-2.2 (1.1)	-2.1 (1.4)	-2.1 (1.4)

** P<0.01, *P<0.05

Table 3: Normative perceptions and misperceptions

Personal Consumption	Perceived norms in others		
	Closest friends	Other students of the same age	Age in society
Non-sport students			
Frequency of drinking	0.64**	0.33**	0.02
Typical no. of drinks on a night out	0.74**	0.61**	0.49**
Frequency of drunkenness	0.74**	0.52**	0.34**
Sport students			
Frequency of drinking	0.75**	0.32**	0.02
Typical no. of drinks on a night out	0.76**	0.66**	0.53**
Frequency of drunkenness	0.71**	0.43**	0.18*

** P<0.01, * P<0.05

Table 4: Relationships between personal consumption and perceptions of others' consumption