Alcohol industry sponsorship and hazardous drinking in UK university sport

Research and Development Grant Final Report

May 2014

Kerry S. O'Brien, Behavioural Studies, Monash University Australia; School of Psychological Sciences, Manchester University UK

Abstract

Aim Examine whether receipt of alcohol industry sponsorship is associated with more problematic drinking in UK university sportspeople.

Methods A purposive sample of university sportspeople (n=2048; response rate=83%) from 15 sport codes were asked by researchers whether they personally, their team, and/or club were currently in receipt of sponsorship (e.g., moneys, travel costs, products), from an alcohol-related industry (e.g., bar, liquor store), and whether they sought out the sponsorship. Drinking behaviour was assessed using the Alcohol Use Disorders Identification Test (AUDIT).

Findings Alcohol industry sponsorship was reported by 36% of the sample. After accounting for confounders (i.e., age, gender, weekly disposable income, location) in multivariate models, receipt of alcohol sponsorship at a team, club, team and club, and personal combination level, was associated with alcohol consumption scores 1.52 to 3.73 points higher (AUDIT-C; range 1-12), on average, than those not in receipt of alcohol sponsorship. Receipt of alcohol sponsorship was also associated with increased odds of being classified a hazardous drinker (AUDIT total 8+), and having alcohol dependence (AUDIT total 16+). Those who sought out sponsorship did not have significantly greater alcohol consumption scores (β_{Adj} -.22, CI:-.78, .34), or significantly greater odds of hazardous (OR 1.21, CI:0.51, 2.88) or dependent drinking status (OR 1.58, CI:0.93, 2.67), than those who were instead approached by a alcohol industry sponsor.

Conclusions Alcohol industry sponsorship is associated with more problematic drinking in UK university sportspeople. Alcohol policy makers and sports administrators should consider whether potential harms outweigh the financial benefits of alcohol sponsorship.

Introduction

Excessive alcohol consumption and hazardous drinking is a leading cause of mortality and morbidity in developed nations [1], and has been ranked above the use of other illicit drugs when considering combined social, health, and financial costs [2]. The tangible cost of alcohol misuse to the United Kingdom (UK) has been calculated at approximately £25 billion per year [3]. Hazardous drinking is particularly problematic in young people and university students [4,5], but even more so in sportspeople (athletes) [6]. Research from the United States (US), Australia, and New Zealand, suggests that sportspeople, and especially university sportspeople, drink in a more hazardous manner than their non-sporting peers and the general population [7-10]. Furthermore, drinking in university sportspeople is associated with greater rates alcohol-related drink-driving, anti-social behaviour, and unprotected and unplanned sex, than in non-sporting peers. Only one published study has examined drinking in English university sportspeople [11]. That work found that hazardous drinking in sportspeople was also greater than in their non-sporting peers. However, there has been no research examining whether alcohol industry sponsorship is associated with more hazardous drinking in UK sportspeople, or indeed in any other European sporting samples.

Sport is a primary vehicle for the marketing of alcohol, with a large proportion of the alcohol industries advertising and sponsorship budget spent in and/or around sport [12,13]. International research suggests that alcohol industry marketing contributes to problem drinking [14-16], with evidence showing that exposure to alcohol advertising and sponsorship in young people is associated with a greater

intention to drink, and higher levels of alcohol consumption [17,18]. A ban on alcohol advertising and sponsorship has been called for by peak medical bodies in several countries (e.g., UK, Ireland, Australia, South Africa) [19-21], and by the UK House of Commons Health Select Committee Report on Alcohol [22]. However, debate between public health advocates, and the alcohol industry and policy makers on the impact of alcohol advertising and sponsorship has forestalled alcohol policy action. The UK government's official response to calls for stronger regulation of alcohol advertising and sponsorship was to recommend that more evidence be provided [23]. Others have also highlighted the importance of such evidence to alcohol policy debates and decisions [24,25]. The present study sought to contribute to this debate by providing evidence on the relationship between alcohol industry sponsorship and hazardous drinking in sportspeople.

Alcohol industry sponsorship of sport refers not only to payments for sports event naming and sole product marketing rights (e.g., Heineken & UEFA Champions League Football), which are in effect advertising, but also to the less conspicuous but potentially more harmful, 'direct to user' alcohol industry sponsorship [26,27]. This direct form of sponsorship occurs across all levels of sport (grass-root/community/elite-level), and encompasses practices such as; payment of team/club fees, uniform/travel costs, and provision of alcohol-related products by alcohol industries (e.g., manufacturers, wholesalers and bars). In return, sponsored individuals/teams/clubs are sometimes required to wear the sponsors logo's and/or frequent and drink at sponsors' premises [26].

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There is a paucity of research examining direct alcohol industry sponsorship of sport participants (athletes), and none from the UK or Europe [24,25]. The absence of such evidence arises, in part, from a reluctance of some sporting organisations to engage in research that may compromise business relationships with alcohol sponsors [25-27]. However, evidence from two purposive samples in New Zealand and Australia [26,27] sportspeople found that up to 47% and 30% of participants, respectively, were in receipt of alcohol industry sponsorship, and that such sponsorship was associated with significantly higher Alcohol Use Disorders Identification Test (AUDIT) scores. Importantly, a recent multination EU longitudinal study found that children who reported indirect exposure to sports clubs receiving alcohol sponsorship reported more positive drinking expectancies and greater odds of having drunk in the past 30 days [28].

There has been no research in the UK examining alcohol industry sponsorship by sportspeople and hazardous drinking despite the importance of such research to current alcohol policy debates. Anecdotally, alcohol industry sponsorship appears common in the UK [29]. We examined whether receipt of alcohol industry sponsorship was associated with more problematic drinking in UK sportspeople. We hypothesised that receipt of alcohol industry-related sponsorship would be associated with more hazardous drinking after accounting for other confounders.

Methods

Participants

As with previous research, we adopted a purposive approach to the recruitment of sport participants. The overall aim of recruitment was to achieve heterogeneity in the exposure of interest, namely, alcohol sponsorship of sportspeople, rather than establish prevalence rates. Although the extent of alcohol industry sponsorship in UK sport is unknown, anecdotally, alcohol industry sponsorship in the UK appears similar to New Zealand and Australia where 47% and 30%, respectively, of sportspeople were currently in receipt of alcohol sponsorship [26,27]. Thus, using the present recruitment approach we expected at least 30% of participants to be in receipt of alcohol industry sponsorship. The epistemological basis of the recruitment approach is that there is no reason to expect that how participants came into the cohort would be connected to the association of interest [30]; i.e. the sportspeople selected are not less likely or more likely to show an association than the theoretical population of UK university sportspeople. The recruitment approach used may also help avoid a potential conflict of interest in which club and sporting organisations who had sponsorship or business contracts with alcohol industries may have denied the research team access to club members. Given that the study sample is not knowingly representative of the theoretical population of sportspeople, sponsorship prevalence rates are not estimated except for the purpose of examining associations with drinking behaviour.

Measures

A short questionnaire containing items assessing demographic details (e.g., age, gender, sports played, weekly disposable income, and post code), the World Health Organisation's Alcohol Use Disorders Identification Test (AUDIT), and items assessing receipt of alcohol industry sponsorship, was used to collect data for the study.

The AUDIT is a 10-item questionnaire with three subscales and a total score range of 0-40. It was developed in association with the World Health Organisation (WHO) to identify persons whose alcohol consumption has become hazardous or harmful to their health [31]. The AUDIT subscales assess: alcohol consumption (AUDIT-C, scoring range 0-12); symptoms of alcohol dependence (AUDIT-D, scoring range 0-12); and hazardous consequences of drinking (AUDIT-H, scoring range 0-16). The validity and reliability of the AUDIT has been thoroughly established with a score of 8+ considered indicative of hazardous drinking [32], and a score of 16+ indicative of alcohol dependence [33,34].

Receipt of alcohol industry sponsorship was assessed using identical items to those described in previous research [26,27]. Briefly, participants were asked if they, or their team, or their club/organisation currently received (yes/no) sponsorship (e.g., monies, equipment, travel costs, discounted/free alcohol) from an alcohol-related industry (e.g., bars, hotels, liquor stores, producers). Participants who reported being uncertain of whether their team or their club were sponsored by an alcohol-related industry were coded as a 'no' for receipt of alcohol industry sponsorship.

Heavier drinkers may preferentially seek out alcohol industry sponsorship, rather than heavier drinking resulting from receipt of alcohol sponsorship, an important issue in directionality of associations [35]. Accordingly, we asked participants who reported receiving alcohol industry sponsorship to report whether they, their team, or club, sought out alcohol-related industry sponsorship (sponsorship seeking), or whether they, their team, or club, were independently approached by an alcohol-related industry offering sponsorship.

Procedure

Data collection was conducted between September 2010 and February 2012, encompassing 15 in season winter and summer sporting codes (i.e., Football, Cricket, Netball, Rugby, Basketball, Hockey, Tennis, Rugby, Volleyball, Athletics, Swimming, Golf, Martial Arts, Gymnastics, and Badminton). We identified university sport-related venues (e.g., sports grounds, stadiums, club rooms, formal university sport programs) across the North West, Midlands, London, and Southern England, for data collection. Upon arrival at venues, researchers approached the nearest sportsperson(s) and invited him or her to participate in the study. Following acceptance or rejection of the invitation the data collector again approached the nearest sportsperson(s) for participation, and so on. Researchers were on hand to provide clarification for participant queries. Participants were offered a nominal incentive of £2 for participation and were informed that their participation would remain confidential and that names or identifying information was not required. The questionnaire took approximately 15 minutes to complete. Ethical approval for the study was obtained from the University of Manchester, Loughborough University, Brunel University, and the University of Chichester.

Statistical Analyses

Drinking outcomes of interest were alcohol consumption, hazardous drinking status, and alcohol dependence. The AUDIT-C (henceforth referred to as alcohol consumption) was treated as a continuous variable. We used the AUDIT total score to create dichotomised variables for both the hazardous drinking status (0 if score is less than 8, or 1 for 8+) and alcohol dependence (0 if score is less than 16, or 1 for 16+). Due to the skewed distribution of disposable income, this variable was categorised (dummy coded) in to £20 increments (of moderately equal size). Multiple linear regression adjusting for age, gender, location, disposable income, was used to examine associations between different levels of alcohol industry sponsorship (team, club, team and club, and personal/individual sponsorship combinations), and drinking outcomes. Multiple linear regression adjusting for age, gender, location, disposable income, was also used to examine associations between between alcohol sponsorship seeking behaviour and alcohol consumption scores.

Multiple logistic regression adjusting for age, gender, location, disposable income, was used to establish whether receipt of alcohol industry sponsorship was associated with a greater odds (Odds Ratio: OR) of being classified as a hazardous drinker, and alcohol dependent. We adjusted for location (i.e., London, Midland, North West, Southern England) as previous research indicates that local environmental factors such as alcohol outlet density and price may influence drinking culture and associated industry sponsorship [36,37]. We also tested the possibility that heavier drinkers may preferentially seek out alcohol industry sponsorship, a potential bias [35].

Finally, we conducted simple omnibus ANOVA's to test for gender differences in age, disposable income, and AUDIT-C scores, and Pearson's Chi Squared analysis to assess gender differences in the proportion of participants classified as hazardous drinkers and alcohol dependent.

Results

A sample of 2048 sportspeople (females n = 891, 44%) was recruited for the study (response rate = 83%). Table 1 presents the characteristics of respondents by sex. Eighty-one participants (4%) were alcohol abstainers. Alcohol consumption (i.e., AUDIT-C) and AUDIT total scores for this sample of sportspeople were high compared with studies using the AUDIT to assess drinking in UK university students [11]. Overall rates of hazardous drinking (AUDIT score 8+) and alcohol dependence (AUDIT score 16+) were high (84% and 42%, respectively). Male sportspeople reported significantly higher alcohol consumption and AUDIT-total scores than females, along with higher rates of alcohol dependence; however, there was no statistical difference between males and females in hazardous drinking. Due to a number of respondents not completing all the variables of interest, the following analysis is based on complete-case analysis of all variables of interest (n = 1658).

Sponsorship

Thirty-six per cent (n = 592) of the sample for analysis were in receipt of alcohol industry sponsorship. The initial examination of the bivariate relationship between

alcohol consumption and each of the modelled variables (see Table 2 – column 1) suggested that all covariates were significantly associated with alcohol consumption patterns. After adjusting for these variables, the final model (see Table 2 – column 2) indicated that sportspeople receiving alcohol industry sponsorship had significantly higher alcohol consumption scores than those sportspeople who did not ($F_{(14,1643)}$ = 12.37, P <.0001). In particular, those sponsored at the level of team, club, both team and club, or personal/individual combinations, on average, had alcohol consumption scores of 1.52 points, 2.16 points, 2.47 points, and 3.73 points higher, respectively, than sportspeople not sponsored by an alcohol industry.

Table 3 displays results for both bivariate and multivariate logistic regression models examining the associations between hazardous drinking or alcohol dependence and each of the modelled variables. The initial examination of the bivariate relationship between hazardous drinking and each of the modelled variables (see Table 2 – column 1) suggested that all covariates (except for gender) were significantly associated with people reporting hazardous drinking. The overall association between sponsorship type and hazardous drinking was statistically significant ($\chi^2_{(4)}$ = 17.34, P = 0.002). The odds-ratio of reporting hazardous drinking was particularly influenced by the significant effect of club sponsorship (followed by team and club sponsorship) compared to no sponsorship. After adjusting for all variables (see Table 3-column 2), the association between sponsorship and hazardous drinker was statistically significant ($\chi^2_{(4)}$ = 11.78, P = 0.019). Sportspeople receiving alcohol industry sponsorship at a club, or team and club level were found to have twice the odds of being hazardous drinkers. Similarly, after adjusting

for all covariates, the association between sponsorship and alcohol dependence was also statistically significant ($\chi^2_{(4)} = 22.66$, $P < 0.001$).

We also tested the hypothesis that heavier drinking sportspeople may preferentially seek out alcohol industry sponsorship, rather than heavier drinking resulting from receipt of alcohol sponsorship. After adjusting for all other variables in regression models, those seeking out sponsorship did not have significantly greater alcohol consumption than those who were approached by a alcohol industry sponsor (β_{Adj} -.22, CI: -.78, .34). Similarly, seeking out sponsorship was not significantly associated with hazardous drinking (OR 1.21, CI: 0.51, 2.88) or dependent drinking status (OR 1.58, CI: 0.93, 2.67).

Discussion

There has been no research examining the association between alcohol industry sponsorship and drinking in sports participants in the UK or Europe, despite its potential importance to alcohol policy debates. Consistent with previous research [26,27], over a third (36%) of sportspeople approached in our sample reported being in receipt of alcohol industry sponsorship. After accounting for potential confounders (age, gender, weekly disposable income, location) receipt of alcohol industry sponsorship at any level (individual, team, club, combinations) was associated with increased levels of alcohol consumption as measured by the AUDIT-C. Specifically, alcohol consumption scores were 1.52 to 3.73 points higher (possible range 0-12) on average, across respective sponsorship levels. Similarly, sportspeople in receipt of alcohol industry sponsorship had, on average, significantly greater odds of being classified as a hazardous drinker or having

alcohol dependence. In particular, the increase in the odds of having alcohol dependence in those sponsored was large compared to sportspeople not receiving alcohol industry sponsorship, and ranged considerably across the respective levels of alcohol sponsorship.

The results of the study are in line with findings from both Australia and New Zealand, which showed an association between receipt of alcohol sponsorship and more hazardous drinking in university [27] and community [26] sporting samples. However, the present results build upon previous research by accounting for disposable income, an important influence on alcohol consumption in young people [38]; and by sampling from greater number/distribution of regions/locations than in previous work. Disposable income was associated with alcohol consumption, hazardous drinking, and to a lesser extent, alcohol dependence. Consistent with regional drinking patterns from UK population data, sportspeople in the North-West of England had, on average, more problematic drinking than sportspeople from other regions, with London the least problematic [39].

We also tested whether heavier drinkers may preferentially seek out alcohol industry sponsorship, rather than heavier drinking merely arising from receipt of alcohol sponsorship, a criticism levelled at previous work by alcohol industry bodies [40,41]. After accounting for all confounders, there was no significant difference in drinking outcomes for those who reported seeking alcohol sponsorship vs. those being offered sponsorship by an alcohol industry. Although this does not rigorously

address issues of directionality, it suggests that regardless of who initiated the alcohol sponsorship, such sponsorship is related to the more problematic drinking.

There are several limitations to the present study. The primary limitation of the study is its cross-sectional design, which precludes causal attribution. The statistical control of confounders and the test of sponsorship seeking behaviour reduces, but does not eliminate, the possibility that other factors may account for the relationship between alcohol sponsorship and drinking outcomes. The use of purposive selection over staged sampling limits the utility of prevalence estimates from the data that might otherwise be possible. The purposive sampling approach was adopted over staged sampling because of the prohibitive cost of the latter approach. Additionally, the sampling approach used here allowed us to circumvent the risk that sporting bodies with alcohol industry links would deny access to the population of interest, a noted problem in previous work [26]. It should be noted that the aim of the study, namely, to test for associations between alcohol sponsorship and drinking behaviour, is unlikely to have been compromised by the approach we selected. As in the cohort study methodology, the relationship between variables is unlikely to be biased if there is heterogeneity in the exposure of interest [42], which was the case in this sample. Finally, because the sample used here was in university sportspeople, it is uncertain as to whether the effect of alcohol sponsorship would be the same in non-university sportspeople. However, research in a New Zealand community sample found a similar pattern of results as found here.

While consistent with findings from other countries [43-45], the high levels of problematic drinking in UK university sportspeople is noteworthy regardless of sponsorship status. The majority of sportspeople in our sample reported drinking at hazardous levels (AUDIT 8+); with a large proportion (42%) reporting drinking behaviour indicative of alcohol dependence. The un-adjusted mean AUDIT score for non-sponsored sportspeople was 14, with approximately 38% of non-sponsored sportspeople reporting drinking behaviour indicative of alcohol dependence. Similarly, although the differences in drinking outcomes between males and females were significant, they were not large (see Table 1). This convergence in male and female sportspeople's drinking has been noted elsewhere [46,47], and is concerning given that females suffer greater physiological harm from excessive alcohol consumption than males. The high levels of hazardous drinking in sportspeople regardless of sponsorship status and sex, suggests that sport may have a problematic drinking culture.

There is vigorous debate in several countries over the need for bans on alcohol advertising and sponsorship, with calls for more evidence to inform these debates. The present study provides some evidence for this subject from the UK, and shows that receipt of alcohol sponsorship in UK sportspeople is associated with more problematic drinking after accounting for numerous confounders. Taken together with recent longitudinal research showing that indirect exposure to alcohol sponsorship in sport influences children's drinking expectancies and behaviour [28], and the high levels of hazardous drinking in sport, policy makers and sports administrators should consider whether the potential long term harms outweigh the financial benefits of alcohol sponsorship.

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Tables

Table 1. Characteristics of the sample. Numbers other than mean and standard deviation scores are represented as raw counts and percentages (%). Significant sex differences are indicated for age, disposable income, and all drinking behaviour scores.

Characteristic	Males n = 1155 (56)	Females n = 893 (44)	Total n = 2048
Mean age	20.07 (1.91)	19.84 (1.51)**	19.97 (1.78)
Mean disposable income £	69.18 (81.39)	55.60 (63.93)***	63.61 (73.00)
Mean alcohol consumption score	8.21 (2.80)	7.85 (2.59)**	8.06 (2.72)
Mean AUDIT total score	14.98 (7.30)	13.81 (6.84)**	14.41 (7.18)
Hazardous drinker (AUDIT 8+)	986 (48)	738 (36)	1724 (84)
Alcohol dependence (AUDIT 16+)	532 (26)	323 (16)***	855 (42)
Location			
North West	536 (53)	478 (47)	1014 (49)
Midlands	157 (58)	114 (42)	271 (13)
London	135 (57)	102 (43)	237 (12)
Southern England	327 (62)	198 (38)	525 (26)
Total	1155 (56)	895 (44)	2047 (100)
Sponsorship†			
Alcohol industry sponsored	310 (52)	282 (48)	592 (29)
Level of sponsorship			
Team only	123 (20)	97 (16)	220 (37)
Club only	84 (14)	112 (19)	196 (33)
Team and Club only	86 (15)	68 (11)	154 (26)
Personal/individual combinations	17 (3)	5 (1)	22 (4)

*Significant gender difference at the $P < 0.05$ level, **Significant at the $P < 0.01$ level. ***Significant at the $P < 0.001$ level. † (%) for sex is calcuted for respective sponsorship categories only. Total (%) are with respect to the whole sample.

Table 2. Bivariate and multivariate regression analysis of alcohol consumption score after accounting for covariates.

Parameters	Alcohol Consumption			
	Unadjusted β	(95% CI)	Adjusted β[b]	(95% CI)
Age	0.85	(0.79, 0.91)***	0.86	(0.80, 0.92)***
Male	1.50	(1.15, 1.95)**	1.47	(1.14, 1.91)**
Weekly disposable income: reference £0-20				
£21-40	2.15	(1.46, 3.17)**	2.13	(1.46, 3.11)***
£41-60	3.17	(2.14, 4.72)***	3.10	(2.11, 4.56)***
£61-80	3.54	(2.18, 5.76)***	3.20	(1.99, 5.13)***
£81-100	3.14	(1.91, 5.16)**	3.20	(1.97, 5.19)***
>£100	1.94	(1.14, 3.30)*	1.99	(1.18, 3.35)**
Location: reference London				
North West	4.57	(3.05, 6.87)***	3.39	(2.24, 5.12)***
Midlands	1.53	(0.94, 2.49)	1.30	(0.80, 2.11)
Southern England	3.27	(2.13, 5.01)***	2.96	(1.94, 4.51)***
Sponsorship[a]: reference none=0				
Team	1.91	(1.28, 2.85)**	1.52	(1.02, 2.27)*
Club	2.85	(1.87, 4.35)***	2.16	(1.40, 3.35)***
Team and club	2.36	(1.49, 3.73)**	2.47	(1.58, 3.88)***
Personal combinations	3.74	(1.17, 11.93)*	3.73	(1.21, 11.53)*

*Significant at the $P < 0.05$ level, **Significant at the $P < 0.01$ level. ***Significant at the $P < 0.001$ level.
[a]Level of sponsorship categories are mutually exclusive, and are limited to those with sufficient numbers to permit valid statistical inference. AUDIT: Alcohol Use Disorders Identification Test; CI: confidence interval. [b] Linktest suggests that the overall model was correctly specified (t=-1.33; p>0.18) and test for multicollinearity indicated no covariates of concern (all VIF scores <3.0 and mean VIF=1.51)

Table 3. Bivariate and multivariate logistic regression analysis for hazardous drinking and alcohol dependence after accounting for covariates.

| Parameters | Hazardous drinking (AUDIT Total 8+) | | Alcohol dependence (AUDIT Total 16+) | |
	OR (95% CI)	Adjusted OR[b,c] (95% CI)	OR (95% CI)	Adjusted OR[b,c] (95% CI)
Age	0.91 (0.85,0.98)**	0.92 (0.86,0.99)*	0.95 (0.90,1.01)	0.93 (0.87,0.98)*
Gender 1=male	1.30 (0.99,1.69)	1.26 (0.95,1.66)	1.67 (1.36,2.05)***	1.75 (1.41,2.16)***
Weekly disposable income: reference £0-20				
£21-40	1.95 (1.35,2.82)***	2.02 (1.38,2.96)***	1.12 (0.83,1.52)	1.09 (0.80,1.50)
£41-60	2.37 (1.60,3.50)***	2.45 (1.64,3.67)***	1.58 (1.16,2.14)**	1.53 (1.11,2.09)**
£61-80	3.13 (1.81,5.42)***	3.01 (1.72,5.28)***	2.08 (1.44,3.01)***	1.86 (1.27,2.73)**
£81-100	2.08 (1.26,3.44)**	2.24 (1.33,3.76)**	1.72 (1.18,2.51)**	1.60 (1.07,2.37)*
>£100	1.72 (1.03,2.89)*	1.76 (1.03,3.01)*	1.57 (1.05,2.36)*	1.49 (0.98,2.29)
Location: reference London=0				
North West	3.28 (2.25,4.80)***	2.76 (1.84,4.12)***	2.95 (2.10,4.16)***	2.45 (1.71,3.50)***
Midlands	1.44 (0.94,2.21)	1.31 (0.84,2.04)	1.98 (1.32,2.95)***	1.75 (1.16,2.65)**
Southern England	2.55 (1.72,3.78)***	2.51 (1.67,3.77)***	1.69 (1.18,2.42)**	1.51 (1.05,2.19)*
Sponsorship[a]: reference none=0				
Team	1.51 (0.97,2.34)	1.25 (0.79,1.99)	1.63 (1.21,2.20)**	1.39 (1.01,1.91)*
Club	2.27 (1.33,3.88)**	1.82 (1.03,3.22)*	2.03 (1.48,2.79)***	1.71 (1.21,2.41)**
Team and club	1.98 (1.14,3.46)*	2.14 (1.20,3.81)**	1.76 (1.25,2.48)**	1.66 (1.16,2.38)**
Personal combinations	4.41 (0.59,33.03)	4.22 (0.56,32.02)	4.40 (1.70,11.44)**	4.18 (1.56,11.15)**

*Significant at the $P < 0.05$ level.**Significant at the $P < 0.01$ level. ***Significant at the $P < 0.001$ level. [a]Level of sponsorship categories are mutually exclusive, and are limited to those with sufficient numbers to permit valid statistical inference. AUDIT: Alcohol Use Disorders Identification Test; CI: confidence interval.[b] Hosmer-Lemeshow tests also indicated a good fit for models (hazardous drinking, $\chi2=5.00$, $p>.75$; and alcohol dependence, $\chi2=13.53$ $p>.10$). [c]Linktest suggests that the overall model was correctly specified (hazardous drinking t=-0.06; $p>0.62$; alcohol dependence t=-0.61; $p>0.62$)