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Alcohol consumption, masculinity, and alcohol-related violence and anti-social behaviour in sportspeople

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Abstract

Objective: There is no research examining alcohol-related aggression and anti-social behaviour in UK or European sportspeople (athletes), and no research has examined relationships between masculinity, alcohol consumption, and alcohol-related aggression and antisocial behaviour in sportspeople (athletes). This study addresses this gap.

Design: Cross-sectional.

Methods: A sample (*N*=2,048; women=892, 44%) of in season sportspeople enrolled at UK universities (response 83%), completed measures of masculinity, alcohol consumption, within-sport (on-field) violence, and having been the perpetrator and/or victim of alcohol-related violent/ aggressive and antisocial behaviour (e.g., hit/assaulted, vandalism, sexual assault). Logistic regressions examined predictors of alcohol-related violence/aggression and anti-social behaviours.

Results: Significant bivariate relationships between masculinity, within-sport violence, alcohol consumption, and alcohol-related aggression and anti-social behaviour were found for both men and women (*p*'s<.001). Logistic regression adjusting for all variables showed that higher levels of masculinity and alcohol consumption in men and women were related to an increased odds of having conducted an aggressive, violent and/or anti-social act in the past 12 months when intoxicated. Odds ratios were largest for relationships between masculinity, alcohol consumption, within-sport violence, and interpersonal violence/aggression (*p*'s<.001). A similar pattern of results was found for having been the victim of aggression and anti-social behaviour.

Conclusions: Alcohol-related aggression and anti-social behaviour appear to be problematic in UK university sportspeople, and is related to masculinity and excessive drinking. Interventions that reduce excessive alcohol consumption, masculine norms and associated within-sport violence, could be effective in reducing alcohol-related aggression and antisocial behaviour in UK sportspeople.

Key Words: Sport, Alcohol, Masculinity, Violence, Anti-social behaviour

Introduction

Excessive alcohol consumption is related to a range of negative health, social and financial consequences for the individual and society more broadly.[1] There is increasing concern about alcohol-related violence and anti-social behaviour. In some countries, alcohol is implicated in over 70% of reported assaults[2], and alcohol is a known contributor to a range of anti-social behaviours (e.g., drink driving, vandalism), causing significant harms to others.[3]

Excessive alcohol consumption is particularly problematic in sportspeople (athletes), and especially university sportspeople who drink more hazardously than non-sporting peers and the general population.[4-6] Most research in the area comes from the United States (US) where alcohol consumption in athletes is associated with a range of harmful behaviours.[7] For instance, higher rates of violence, vandalism, sexual coercion, and drink-driving are reported by university athletes who drink.[7] However, a recent review of the literature[8] found that studies on alcohol-related aggression and anti-social behaviour in sport are sparse with only three empirical studies conducted in non-US sporting samples[8,9], and no research from the United Kingdom (UK) or Europe.[8] Similar gaps in the research base are identified for on-field violence,[10] and there is no empirical research examining sociocultural antecedents (e.g., masculinity) of alcohol-related aggression and anti-social behaviour in sportpeople.[8,10]

Masculinity appears to play a role in aggression, anti-social behaviour and excessive alcohol consumption in non-sporting samples.[11,12] Higher levels of masculinity have been shown to be

associated with intimate partner violence, barroom assaults, and sexual coercion.[12] Masculinity is also associated with excessive alcohol consumption, violence and anti-social behaviour in both men and women. [13] Although different forms of masculinity have been proposed (e.g., hegemonic masculinity, hyper-masculinity) most researchers describe masculinity as a sociocultural construction of the beliefs, traits, and behaviours that are important to being a man and which support the maintenance of dominance and power over others.[14] Masculinity, operationalised here in a manner consistent with hegemonic masculinity,[14] is the degree to which a person identifies themselves as having masculine traits and tendencies (e.g., assertive, dominant, independent, forceful).[15] Masculinity is said to be socialised throughout the lifespan with both men and women varying in the degree to which they internalise masculine traits, beliefs, norms, and practices.[14,15]

Sport theorists suggest that the physically aggressive and confrontational nature of most sports, along with masculine/jock norms, may attract men and women who have more masculine and aggressive tendencies, and/or socialise displays of aggression and/or masculine traits in sport participants.[16-18] Some studies show that men and women do implicitly associate sport with masculinity.[18] Other research suggests that higher levels of masculinity are associated with more violent within-sport behaviour (e.g., illegal hitting, kicking).[19] Weinstein and colleagues[16] found that higher levels of masculinity in ice hockey players were associated with a greater number of penalty minutes for aggressive play and more in game fist fights. Given the masculine nature of sport and high levels of alcohol consumption and associated harms in sportspeople,[8] it is important to examine the relationship between masculinity and alcohol consumption in explaining the higher rates of alcohol-related aggression and anti-social behaviour observed in sportspeople.[7,8]

Although there is no research on these relationships in sport participants, research in non-sport settings shows a relationship between masculinity, alcohol consumption, and aggression in men.[11,12,20] Miller and colleagues found that alcohol-related aggression was associated with masculinity in young men and tradesmen, but the association between masculinity and alcohol-related aggression was in part explained by excessive alcohol consumption.[11,12]

There is a paucity of research examining alcohol-related aggression and anti-social behaviour in UK or European sport participants. There is also no research examining the relationship between masculinity, within-sport violence, alcohol consumption, and alcohol related aggression and anti-social behaviour in sportspeople (e.g., physical/sexual assaults, vandalism). The present study sought to address these gaps. We hypothesised that higher masculinity would be related to greater odds of having being involved in alcohol-related aggression and antisocial behaviour, after accounting for other factors (e.g., age, location, within sport violence).

Methods

A sample of 2,048 in-season sport participants (athletes) over 18 years (mean age=20.14, SD=2.60 years; women=892; 44%) were recruited (response rate 83%) from 10 universities in four regions of England (North East, Midland, London, South England) to participate in the study. Note that while the participants were enrolled with a university they did not necessarily play collegiate sport. Comprehensive details of the sample and sampling approach have been published elsewhere.[21] Briefly, participants from 36 sports completed a questionnaire containing demographic questions (e.g., age, sex, post code/region), the World Health Organisation's Alcohol Use Disorders Identification Test (AUDIT)[22], and measures assessing alcohol-related aggression and antisocial behaviour, masculinity, and intentional within-sport violence. Approximately 80% of participants came from the following 10 sports (Football/Soccer 18.5%, Rugby Union/League 18.2%, Hockey 8.5%, Cricket 7.2%, Netball 6.7%, Basketball 5%, Athletics 4.7%, Lacrosse 3.9%, Swimming 3.2%, Tennis 2.13%).

The AUDIT is a 10-item questionnaire developed to identify persons whose alcohol consumption has become hazardous or harmful (WHO).[22] The AUDIT has 3 subscales assessing: alcohol consumption (AUDIT-C), symptoms of alcohol dependence (AUDIT-D), and hazardous consequences of drinking (AUDIT-H). The present study only used the AUDIT-C subscale in analyses, as the AUDIT-D and AUDIT-H encompass aspects of alcohol-related harm overlaping our

formal measures of alcohol-related aggression and anti-social behaviour. AUDIT-C scores range from 0-12 with a score of ≥5 indicating alcohol dependence.[22]

Participants reported whether they had perpetrated and been the victim of a range of aggressive and/or antisocial behaviours when drinking alcohol in the past 12 months. Common measures of alcohol-related harms and second-hand effects were used,[23,24] which asked participants whether they had in the past 12 months, 'abused, insulted, or humiliated someone', 'hit, pushed or assaulted someone', 'damaged others property', 'made an unwanted sexual advance', and /or 'drove a motor vehicle' while drinking alcohol. Similarly, participants were asked if they had been the victim of any of the harms described above (excluding 'drove a motor vehicle'). We also asked participants, 'have you been the vicitm of a sexual assault' due to someone elses intoxication in the past 12 months. Yes responses were coded as 1, no responses as 0.

Masculinity was measured using the 10-item masculinity trait scale from Bem's Sex Role Inventory-Brief (BSRI-B) [15] a well validated measure of masculinity utilised in studies examining alcohol consumption, violence, and masculinity in sports.[25] Although there has been theoretical debate regarding the factor structure of BSRI, much of this debate has centred on the femininity subscale, which has shown instability across time. However, the masculinity scale has good face and predictive validity,[25] and has been shown to be stable in population scoring across time.[26] The masculinity scale asks participants to indicate, using a 7-point scale (1=never/almost never true to 7=always/almost always true), how well specific traits describe them (e.g., aggressive, dominant). Higher scores indicate greater masculinity. Cronbach's alpha for the scale in this study was good (α=.85).

Because there is no established measure of within-sport violence, we constructed a single item for this purpose. Participants were asked "Have you been intentionally violent (e.g., punching, kicking, elbowing, foul play) toward another sportsperson when playing your sport in the past year? Note that this refers to violent behaviours that are banned in your sport". Yes responses were coded as 1, no responses as 0.

Data collection was conducted across 14 months encompassing both winter and summer sporting codes. Venues for data collection were identified from university webpage listings and competition schedules posted in newsletters. Non-team sport venues (e.g., tennis), which have smaller numbers of participants, were visited up to five times for data collection. To bypass potential bias in participant recruitment whereby some sports deny access to sportspeople because of sensitivities around alcohol and drug use,[21] we approached participants directly at playing and training facilities, and sport-related teaching venues. As the study sample is not knowingly representative of the theoretical population of UK athletes we do not make prevalence estimates. Participants were offered a nominal incentive (£2) for participation, and assured that their participation and data would remain confidential. Questionnaires took approximately 15 minutes to complete. Ethics approval was obtained from the universities of Manchester, Loughborough, Brunel and Chichester.

Sex differences on variables were tested with simple t-tests for linear variables, and chi-square tests of proportions. Spearman's correlation coefficients were calculated to examine bivariate relationships for variables. We conducted separate logistic regressions for men and women to establish multivariate relationships between aggressive and antisocial behaviours and the independent variables. For the purpose of the logistic regressions, we standardized masculinity and AUDIT-C scores to simplify the interpretation of results and reduce collinearity, but report unstandardized means and standard deviations in table 1. We used multilevel logistic regression in which individual respondents were nested within clusters specific to their gender, sport, and region/location. This analytical structure corrects for the effects of clustering within sports and sampling sites. Because rates of alcohol-related problems have been shown to vary across regions of the UK (e.g., North-West England vs. London), we included location as a fixed effect in multivariate analyses. For the results of the logistic regressions we follow convention and report odds ratios (OR) and associated 95% confidence intervals (CI).

Results

Table 1 displays sample characteristics. Most participants had AUDIT-C scores indicative of dependence (AUDIT-C score ≥5), and over half reported having insulted/abused someone and being insulted/abused by someone when drinking in the past year. A large proportion of participants also reported having assaulted someone or having been assaulted by someone, or having been involved as a perpetrator or victim of vandalism (damaged property). Men had only slightly, but significantly, higher levels of masculinity than women.

Table 2 presents Spearman's correlation coefficients for all variables. There were significant positive associations for men and women between masculinity, AUDIT-C scores, intentional within-sport violence, and most forms of alcohol-related aggression and anti-social behaviours. The largest associations were between masculinity, AUDIT-C, intentional within sport violence, and having insulted/humiliated someone, assaulted someone, or having damaged other people's property. Similarly, stronger correlations were found between AUDIT-C, masculinity, intentional within-sport violence, and having been assaulted by someone else. We conducted post-hoc Fisher's Z tests to establish whether the size of correlations between masculinity, alcohol consumption, and all aggressive and anti-social behaviours differed significantly for sex. The correlations only differed for one outcome variable, with the correlation between alcohol consumption and being the victim of an assault larger for men than women (Z=3.5, p<.001, two-tailed).

After adjusting for all variables in multivariate logistic models (Table 3), having higher masculinity, AUDIT-C, and having displayed intentional within-sport violence, were positively associated with violence and anti-social behaviour among men and women. For example, higher levels of masculinity in men and women were associated with an increased odds of having insulted/humiliated someone and having assaulted someone when intoxicated. It is noteworthy that in men, higher levels of masculinity were not associated with an increase in the odds of having made an unwanted sexual advance. However, higher levels of masculinity in women were associated with a higher odds of having reported making an unwanted sexual advance. In men, there was a significant positive relationship between masculinity and damaging someone else's property and driving a motor

vehicle when drunk, but these relationships were not observed in women. The association between masculinity and having been the victim of aggressive and anti-social behaviours was smaller across all outcomes for men and women.

For both men and women, a higher level of alcohol consumption (AUDIT-C scores) was significantly associated with higher odds of having carried out all of the aggressive and anti-social behaviours of interest here. The size of the relationships between alcohol consumption and having insulted/humiliated and having assaulted someone, were nearly identical for women and men. Of note, the relationship between AUDIT-C scores and having made an unwanted sexual advance was larger for women than for men. Similar to the pattern observed for masculinity, for women and men the size of relationships between AUDIT-C and having been the victim of aggressive and anti-social behaviours was smaller than for having carried aggressive and anti-social behaviours when intoxicated. Finally, although all models examining the influence of masculinity and alcohol consumption account for whether participants report having carried out intentional within sport violence, it is clear from table 3 that within sport violence had the largest relationship with having insulted/humiliated someone, and having assaulted someone when intoxicated.

Discussion

No research has examined the relationships between masculinity, alcohol consumption and alcohol-related aggression and anti-social behaviour in sportspeople.[13] After adjusting for all other variables in multivariate analyses, higher levels of masculinity and alcohol consumption (AUDIT-C) were associated with an increased odds of having committed an aggressive or anti-social act when drinking alcohol for men and women. The effects were largest for relationships between masculinity, alcohol consumption, and interpersonal aggression/violence (i.e., insulting/humiliating someone, physically assaulting someone). A similar pattern of effects was observed for being the victim of alcohol-related aggression and antisocial behaviour. However, masculinity was only associated with making an unwanted sexual advance in women.

The findings are consistent with previous work in non-sporting male samples which show that relationships between masculinity and barroom aggression were partly explained by hazardous drinking.[11,12] However, previous work has focused on men. We found that sportswomen had similar relationships between masculinity, alcohol consumption, and alcohol-related aggression and anti-social behaviours, as sportsmen. Although there was a significant difference in masculinity scores for men and women, this difference was very small (≈5%). This finding is new, but supports theoretical predictions suggesting that women in some roles/contexts may have levels of masculinity comparable to men.[15] Sport is a cultural milieu where masculinity and excessive alcohol consumption is commonplace and explicitly and implicitly accepted.[6,18] For example, although men's and women's levels of alcohol consumption are converging in westernized nations, this convergence appears most obvious in sport.[27]

The high proportions of men and women reporting being involved in alcohol-related aggression (e.g., assaults), either as the aggressor or as the victim, should be of concern to UK sporting bodies. Although different sampling approaches prohibit robust comparisons, it is worth noting that the proportion reporting aggressive and anti-social behaviours here is higher (approximately 17-50%) than in similar studies in Australia.[8,9,24] Alcohol consumption scores were also considerably higher in the present sample, and may account for the differences in rates of alcohol-related aggression.

We also examined the relationship between intentional within-sport violence, masculinity, and alcohol-related violence. Intentional within-sport violence is likely a good surrogate for violent or aggressive tendencies/traits and should, theoretically, be related to masculinity. Intentional within-sport violence was associated with masculinity and aggressive and anti-social behaviours. This supports the notion that masculinity is related to aggressive behaviour, independent of alcohol consumption.[28] Caution should be taken in interpreting this result because the proportion of men (28%) and women (6%) reporting intentional within-sport violence was small compared with those reporting alcohol-related aggression. Regardless, masculinity appears to play a role in alcohol-related and non-alcohol related aggression/violence.

Understanding the interplay between masculinity, alcohol consumption, and aggression and anti-social behaviour is important to debates on the causes and remedies of alcohol-related violence.[26] Public health researchers suggest policies that reduce excessive alcohol consumption (e.g., alcohol availability, pricing, alcohol outlet density) as the best approach to addressing alcohol and masculinity-related violence and other harms.[29] Others argue that alcohol is used as an excuse for men's violence, and that men's masculinity-related beliefs and behaviours should be the focus of efforts to reduce violence.[28] These divergent perspectives are not arbitrary. Government funded national programs for reducing men's violence (e.g., OurWatch)[30] seek in part to change masculinity-related beliefs, norms and identity in men as a means for reducing alcohol-related violence. Peak sporting bodies and clubs were identified as key platforms for delivering these programs.[30] However, there has been little empirical evidence to support this approach. The results of the present study find that masculinity in men and women is related to a range of alcohol-related aggressive behaviours. As such the present results provide evidence for policy debates, and in part, support calls for the inclusion of approaches to address masculinity-related traits, beliefs, norms, in alcohol and violence reduction programs, particularly in sport settings.[29,30]

There are some limitations to the study. The sampling approach prevents calculation of prevalence estimates for aggressive and anti-social behaviour, and prevents direct comparisons between different sporting codes and sex. Similarly, we are unable to establish whether levels of masculinity vary between different sporting codes that may attract those with higher levels of masculinity. The correlational design also prevents any inferences of causation. Large scale longitudinal studies in representative samples of athletes are needed to address these limitations. Known difficulties in gaining research approval from sporting codes who may be risk averse on issues such as alcohol (e.g., negative publicity, relationships with alcohol industries), will need to be overcome in order to ensure representativeness of samples.

Conclusion

Notwithstanding these limitations, the study provides needed evidence on the relationship between masculinity, alcohol consumption, and alcohol-related violence and anti-social behaviour in sportspeople. Higher levels of masculinity and alcohol consumption in men and women were associated with an increased probability of alcohol-related aggression and anti-social behaviour. The findings suggest that policies and/or interventions that address excessive alcohol consumption and masculinity-related beliefs and norms could reduce alcohol-related aggression in sportspeople.

Practical implications

- Higher levels of masculinity in both men and women were associated with increased odds of drinking excessively and being involved in alcohol-related aggression and anti-social behaviour.
- Overall levels of aggressive and antisocial behaviour and alcohol consumption were high in this sample of UK sportspeople.
- Reducing alcohol-related violence in the community is a focus for several governments. Sporting bodies and organisations could play an important role in reducing alcohol-related violence and anti-social behaviour in the wider community.

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Table 1 Characteristics of the participants. Numbers other than means and 95% confidence intervals represent raw counts and percentages (%) of the location and of sportspeople having caused and/or been victim of alcohol-related aggressive and/or antisocial behaviour when drinking alcohol in past year.

Variables	**Women n = 723 (42)**	**Men n = 997 (58)**	**Total n = 1720**
Mean age	19.76	19.98*	19.88
	(19.64, 19.87)	(19.86, 20.09)	(19.80, 19.97)
Mean AUDIT-C	7.81	8.28*	8.08
	(7.63, 8.00)	(8.11, 8.44)	(7.96, 8.21)
Mean masculinity	4.71	4.96**	4.86
	(4.65, 4.78)	(4.91, 5.02)	(4.82, 4.90)
Within sport violence	42 (6)	275 (28)**	317 (18)
Location			
London	92 (13)	113 (11)	205 (12)
Midlands	109 (15)	145 (15)	254 (15)
Northwest	323 (45)	417 (42)	740 (43)
Southern	199 (27)	322 (32)	521 (30)
Did aggressive and/or antisocial behaviour			
Insulted/humiliated others	368 (51)	744 (75)**	1112 (65)
Assaulted others	172 (24)	412 (41)**	584 (34)
Damaged others' property	129 (18)	430 (43)**	559 (33)
Made unwanted sexual advance	70 (10)	169 (17)**	239 (14)
Drove a motor vehicle	50 (7)	184 (18)**	234 (14)
Received aggressive and/or antisocial behaviour			
Was insulted/humiliated	392 (54)	662 (66)**	1054 (61)
Was assaulted	289 (40)	561 (56)**	850 (49)
Own property damaged	194 (27)	359 (36)**	553 (32)
Received unwanted sexual advance	283 (39)	297 (30)**	580 (34)
Was sexually assaulted	29 (4)	41 (4)	70 (4)

Significance level, $p<.01$*, $p<.001$**

Table 2 Spearman's correlation coefficients for all variables in the study. Men's results are displayed below the diagonal, and women's above.

Variables	1	2	3	4	5	6	7	8	9	10	11	12	13	14
1. Age	--	-.02	-.09**	.03	-.07*	-.07	.01	.02	.01	-.03	-.04	.01	.04	.09**
2. Within sport violence	-.05	--	.14***	.12**	.17***	.18***	.15***	.05	.16***	.12**	.16***	.06	.14***	.16***
3. AUDIT-C	-.06*	.19***	--	.16***	.35***	.28***	.25***	.14***	.18***	.18***	.16***	.13**	.16***	.01
4. Masculinity	.10**	.18***	.12***	--	.21***	.18***	.09*	.05	.15***	.15***	.15***	.08*	.15***	.09*
5. Insulted/humiliated others	.04	.25***	.37***	.20***	--	.36***	.30***	.18***	.17***	.46***	.29***	.24***	.23***	.09*
6. Assaulted others	-.01	.31***	.35***	.20***	.39***	--	.22***	.26***	.20***	.23***	.43***	.22***	.14***	.09**
7. Damaged property	.003	.29***	.32***	.14***	.42***	.49***	--	.17***	.21***	.19***	.16***	.27***	.14***	.10**
8. Drunk driving	.03	.13***	.13***	.11***	.17***	.26***	.28***	--	.10**	.11**	.12***	.10**	.05	.11**
9. Made unwanted sexual advance	.05	.09**	.17***	.08*	.23***	.21***	.24***	.15***	--	.14***	.13***	.14***	.31***	.19***
10. Insulted by someone	.05	.14***	.26***	.13***	.49***	.32***	.30***	.06*	.19***	--	.38***	.29***	.15***	.10**
11. Assaulted by someone	.03	.24***	.31***	.18***	.43***	.58***	.42***	.17***	.17***	.48***	--	.24***	.22***	.16***
12. Property damaged	.08**	.16***	.19***	.11***	.27***	.29***	.39***	.15***	.23***	.34***	.39***	--	.25***	.14***
13. Received unwanted sexual advance	.07*	.12***	.17***	.09**	.20***	.18***	.23***	.12***	.42***	.18***	.21***	.29***	--	.18***
14. Was sexually assaulted	.05	.09**	.05	.03	.13***	.11***	.01	.12***	.24***	.10***	.10**	.18***	.27***	--

Significance level p<.05*, p<.01**, p<.001***

Table 3 Bivariate and multivariate (adj) odds ratio's (OR) and 95% confidence intervals for relationships between independent variables and having done, and/or been the victim of, alcohol-related aggression and antisocial behaviours.

	Insulted/humiliated others (men)		Assaulted others (men)		Damaged property (men)		Made unwanted sexual advance (men)		Drove a motor vehicle drunk (men)	
Predictors	OR (95% CI)	Adj. OR (95% CI)	OR (95% CI)	Adj. OR (95% CI)	OR (95% CI)	Adj. OR (95% CI)	OR (95% CI)	Adj. OR (95% CI)	OR (95% CI)	Adj. OR (95% CI)
Age	1.07 (0.99,1.17)	1.09 (0.99,1.19)	0.98 (0.92,1.06)	1.00 (0.93,1.08)	1.01 (0.94,1.08)	1.04 (0.96,1.12)	1.02 (0.93,1.12)	1.02 (0.93,1.13)	1.03 (0.95,1.13)	1.06 (0.97,1.15)
Location (ref: London)										
Midlands	0.72 (0.39,1.34)	1.34 (0.74,2.42)	0.59 (0.33,1.08)	0.81 (0.45,1.46)	0.78 (0.45,1.34)	1.35 (0.76,2.40)	0.76 (0.34,1.71)	1.50 (0.60,3.73)	0.50* (0.28,0.90)	0.51 (0.25,1.07)
Northwest	1.43 (0.86,2.40)	1.48 (0.89,2.46)	1.53 (0.99,2.38)	1.30 (0.79,2.14)	1.51* (1.03,2.22)	1.71* (1.04,2.81)	2.11** (1.21,3.67)	2.05 (0.93,4.53)	0.92 (0.61,1.39)	0.78 (0.44,1.38)
Southern	1.36 (0.77,2.38)	1.44 (0.85,2.43)	1.37 (0.79,2.38)	0.92 (0.55,1.54)	1.21 (0.74,1.97)	1.18 (0.71,1.97)	0.70 (0.36,1.37)	0.89 (0.37,2.15)	1.68* (1.12,2.52)	1.18 (0.67,2.11)
Within sport violence	5.34*** (3.32,8.58)	4.06*** (2.45,6.72)	4.02*** (2.96,5.45)	3.20*** (2.32,4.40)	3.87*** (2.86,5.25)	3.18*** (2.32,4.37)	1.66** (1.14,2.40)	1.43 (0.98,2.09)	1.92*** (1.36,2.71)	1.55* (1.08,2.21)
AUDIT-C	2.52*** (2.15,2.94)	2.35*** (2.00,2.77)	2.48*** (2.04,3.00)	2.21*** (1.82,2.68)	2.20*** (1.85,2.63)	1.98*** (1.66,2.37)	1.82*** (1.42,2.33)	1.76*** (1.37,2.26)	1.52*** (1.24,1.86)	1.44*** (1.17,1.77)
Masculinity	1.54*** (1.32,1.80)	1.50*** (1.27,1.78)	1.49*** (1.30,1.72)	1.35*** (1.16,1.57)	1.31*** (1.14,1.50)	1.16* (1.01,1.34)	1.17 (0.98,1.41)	1.11 (0.92,1.33)	1.36*** (1.14,1.62)	1.26* (1.06,1.51)

Table 3 Cont'd

Predictors	Was insulted/humiliated (men)		Was assaulted (men)		Own property damaged (men)		Received unwanted sexual advances (men)		Was sexually assaulted (men)	
	OR (95% CI)	Adj. OR (95% CI)	OR (95% CI)	Adj. OR (95% CI)	OR (95% CI)	Adj. OR (95% CI)	OR (95% CI)	Adj. OR (95% CI)	OR (95% CI)	Adj. OR (95% CI)
Age	1.04 (0.97,1.12)	1.05 (0.97,1.13)	0.98 (0.91,1.04)	0.98 (0.91,1.05)	1.06 (0.98,1.13)	1.05 (0.98,1.13)	1.05 (0.98,1.13)	1.05 (0.97,1.13)	1.10 (0.94,1.29)	1.09 (0.93,1.27)
Location (reference: London)										
Midlands	0.90 (0.57,1.43)	1.24 (0.73,2.12)	0.90 (0.57,1.42)	1.19 (0.70,2.05)	1.28 (0.74,2.21)	2.70** (1.47,4.96)	1.02 (0.62,1.69)	1.37 (0.76,2.46)	1.40 (0.47,4.17)	5.37 (0.66,44.01)
Northwest	1.60** (1.17,2.21)	1.40 (0.88,2.21)	1.48* (1.08,2.02)	1.28 (0.81,2.04)	1.86** (1.27,2.72)	3.36*** (1.95,5.78)	1.75** (1.25,2.46)	1.70* (1.03,2.83)	2.60* (1.12,6.01)	5.90 (0.78,44.48)
Southern	0.85 (0.58,1.25)	0.91 (0.57,1.46)	0.92 (0.63,1.34)	0.87 (0.54,1.40)	0.80 (0.50,1.28)	1.58 (0.90,2.77)	0.70 (0.46,1.05)	0.88 (0.52,1.51)	0.34 (0.11,1.04)	1.39 (0.16,12.19)
Within sport violence	1.96*** (1.42,2.71)	1.50* (1.07,2.10)	3.02*** (2.20,4.13)	2.29*** (1.64,3.19)	2.09*** (1.54,2.82)	1.74*** (1.28,2.35)	1.70*** (1.26,2.31)	1.49* (1.09,2.04)	2.16* (1.12,4.16)	2.03* (1.05,3.93)
AUDIT-C	1.81*** (1.57,2.07)	1.72*** (1.50,1.99)	2.16*** (1.85,2.53)	1.98*** (1.69,2.32)	1.44*** (1.23,1.69)	1.36*** (1.17,1.59)	1.49*** (1.26,1.76)	1.43*** (1.21,1.69)	1.40 (0.93,2.09)	1.29 (0.86,1.94)
Masculinity	1.27*** (1.11,1.45)	1.20* (1.04,1.38)	1.41*** (1.23,1.61)	1.31*** (1.14,1.52)	1.24** (1.08,1.43)	1.17* (1.01,1.34)	1.18* (1.02,1.36)	1.12 (0.96,1.29)	1.08 (0.78,1.50)	0.97 (0.71,1.34)

Table 3 Cont'd

Predictors	Insulted/humiliated others (women)		Assaulted others (women)		Damaged property (women)		Made unwanted sexual advance (women)		Drove a motor vehicle drunk (women)	
	OR (95% CI)	Adj. OR (95% CI)	OR (95% CI)	Adj. OR (95% CI)	OR (95% CI)	Adj. OR (95% CI)	OR (95% CI)	Adj. OR (95% CI)	OR (95% CI)	Adj. OR (95% CI)
Age	0.92 (0.84,1.01)	0.97 (0.87,1.08)	0.90 (0.80,1.02)	0.94 (0.83,1.08)	0.94 (0.83,1.08)	1.00 (0.87,1.16)	0.99 (0.85,1.17)	1.04 (0.87,1.23)	1.09 (0.93,1.28)	1.16 (0.97,1.37)
Location (ref: London)										
Midlands	0.85 (0.52,1.39)	1.13 (0.59,2.17)	0.70 (0.40,1.23)	1.03 (0.47,2.27)	0.48 (0.22,1.04)	0.60 (0.24,1.51)	1.44 (0.63,3.30)	2.07 (0.71,6.04)	0.47 (0.17,1.33)	0.45 (0.13,1.56)
Northwest	1.06 (0.70,1.60)	0.71 (0.41,1.23)	1.30 (0.87,1.96)	0.98 (0.51,1.88)	1.49 (0.87,2.54)	0.89 (0.43,1.85)	1.65 (0.83,3.28)	1.16 (0.45,2.98)	1.26 (0.71,2.24)	0.66 (0.28,1.56)
Southern	1.10 (0.72,1.69)	0.77 (0.43,1.39)	1.07 (0.66,1.73)	0.88 (0.44,1.77)	1.03 (0.56,1.88)	0.71 (0.32,1.55)	0.41* (0.18,0.94)	0.46 (0.15,1.39)	0.92 (0.48,1.77)	0.66 (0.25,1.69)
Within sport violence	5.83*** (2.39,14.20)	4.03** (1.58,10.29)	4.37*** (2.28,8.38)	2.94** (1.48,5.83)	3.09** (1.56,6.14)	2.36* (1.17,4.76)	3.83*** (1.78,8.24)	2.63* (1.17,5.91)	1.91 (0.72,5.10)	1.44 (0.53,3.94)
AUDIT-C	2.68*** (2.17,3.30)	2.61*** (2.10,3.25)	2.53*** (1.93,3.31)	2.28*** (1.72,3.00)	2.64*** (1.92,3.62)	2.51*** (1.81,3.47)	2.49*** (1.65,3.76)	2.38*** (1.56,3.62)	2.06*** (1.34,3.16)	2.11** (1.34,3.31)
Masculinity	1.50*** (1.28,1.76)	1.40*** (1.18,1.66)	1.53*** (1.27,1.84)	1.37** (1.13,1.67)	1.19 (0.98,1.46)	1.04 (0.84,1.28)	1.69*** (1.28,2.22)	1.53** (1.16,2.03)	1.21 (0.90,1.62)	1.06 (0.78,1.43)

Table 3 Cont'd

Predictors	Was insulted/humiliated (women)		Was assaulted (women)		Own property damaged (women)		Received unwanted sexual advances (women)		Was sexually assaulted (women)	
	OR (95% CI)	Adj. OR (95% CI)	OR (95% CI)	Adj. OR (95% CI)	OR (95% CI)	Adj. OR (95% CI)	OR (95% CI)	Adj. OR (95% CI)	OR (95% CI)	Adj. OR (95% CI)
Age	0.97 (0.88,1.06)	0.98 (0.89,1.08)	0.94 (0.85,1.04)	0.95 (0.86,1.05)	1.01 (0.91,1.12)	1.02 (0.92,1.14)	1.01 (0.92,1.12)	1.02 (0.92,1.14)	1.19 (0.97,1.45)	1.20 (0.97,1.48)
Location (reference: London)										
Midlands	0.80 (0.53,1.21)	0.78 (0.44,1.39)	0.83 (0.52,1.32)	0.85 (0.45,1.61)	0.71 (0.40,1.24)	0.75 (0.37,1.52)	0.93 (0.52,1.67)	1.13 (0.54,2.38)	1.06 (0.28,4.00)	2.22 (0.33,14.78)
Northwest	1.07 (0.79,1.43)	0.74 (0.46,1.21)	1.10 (0.76,1.58)	0.82 (0.47,1.42)	1.29 (0.84,1.97)	0.97 (0.53,1.75)	1.72* (1.07,2.74)	1.26 (0.64,2.46)	2.23 (0.80,6.18)	2.72 (0.51,14.58)
Southern	0.98 (0.70,1.35)	0.73 (0.44,1.24)	0.96 (0.65,1.42)	0.75 (0.42,1.34)	0.91 (0.57,1.47)	0.79 (0.42,1.47)	0.59* (0.35,0.97)	0.62 (0.31,1.25)	0.50 (0.14,1.77)	1.17 (0.17,7.86)
Within sport violence	3.29** (1.55,6.98)	2.54* (1.18,5.47)	4.12*** (2.05,8.27)	3.25** (1.60,6.62)	1.65 (0.84,3.21)	1.39 (0.71,2.74)	3.36*** (1.66,6.78)	2.70** (1.32,5.53)	5.72*** (2.12,15.44)	5.25** (1.87,14.72)
AUDIT-C	1.43*** (1.22,1.67)	1.37*** (1.16,1.62)	1.42*** (1.19,1.69)	1.32** (1.10,1.58)	1.36** (1.12,1.65)	1.32** (1.07,1.62)	1.51*** (1.25,1.83)	1.45*** (1.19,1.76)	1.18 (0.76,1.84)	1.07 (0.67,1.72)
Masculinity	1.33*** (1.14,1.54)	1.25** (1.07,1.46)	1.39*** (1.18,1.62)	1.31** (1.11,1.55)	1.19* (1.00,1.41)	1.13 (0.95,1.34)	1.39*** (1.17,1.64)	1.31** (1.10,1.55)	1.60* (1.07,2.41)	1.40 (0.92,2.12)

* Significant at the $p < .05$ level. ** Significant at the $p < .01$ level. *** Significant at the $p < .001$ level. AUDIT-C = Alcohol Use Disorders Identification Test, consumption subscale. OR = bivariate odds ratios. Adj. OR = multivariate odds ratio's adjusting for all other predictors in the model. CI = 95% confidence interval. Note for multivariate analysis data on all variables was provided by N=1720.