

Survival of the Drunkest: The relationship between intrasexual competition and excessive alcohol consumption by university students

Abstract

Recent evidence has highlighted intrasexual competition as a potential influence on anabolic androgenic steroid use, however the potential impact on other substance use behaviours is yet to be explored. This study examined the potential role of intrasexual competition on alcohol consumption, in an environment where excessive consumption is the socially desirable norm, at university. In total, N=223 university students were recruited from a single university in Wales, United Kingdom, and a series of between subject's one-way ANOVAs were run to determine the relationship between alcohol consumption (AUDIT) and Intrasexual Competition (Intrasexual Competition Scale). There was a significant positive association between self-reported alcohol use and levels of intrasexual competition. Further analysis identified this relationship was exclusive to those who did not participate in university sport. The findings of the current study provide further evidence for intrasexual competition as a potential influence on substance use behaviours and highlights sports participation may be protective against this relationship.

Keywords: Intrasexual Competition; Sexual Selection; Excessive Alcohol Consumption; University; Sport.

Public Significance Statement: Students who reported higher competitiveness for access to potential mates were more likely to be classified as harmful or probable dependence drinkers.

However, participating in university sport may be protective against this relationship.

Interventions aimed at reducing student alcohol consumption may be enhanced by highlighting the negative perceptions of alcohol consumption held by students towards potential mates.

Introduction

Excessive alcohol consumption dominates university culture (Davoren et al., 2016). Studies have identified a prevalence rate of hazardous consumption in UK universities ranging from 59.9% to 85% of students (Heather et al., 2011; El Ansari et al., 2011; John & Alwyn, 2014), a considerable increase on the 45% and 69% reported by previous investigations (Cooke, Sniehotta, & Schütz, 2006; Norman, 2011; Norman, Armitage, & Quigley, 2007; Norman & Conner, 2006). Furthermore, considerable evidence demonstrates that students who play sport represent a subgroup of the student population who consume even greater levels of alcohol than the general student population (See, Zhou & Heim, 2014). For instance, O'Brien et al.'s (2014) study investigating the prevalence of high alcohol consumption across 4 English regions: North West, Midlands, London, and Southern England, identified 84% of student sportspeople reported hazardous consumption. Elsewhere, Partington et al. (2010) investigated prevalence across seven universities in England and found 79.6% of students who played sport were classified as hazardous drinkers and beyond, with 53% reporting that they binged on alcohol at least weekly.

It is currently unclear, however, why such a high proportion of students, particularly those who partake in university sport, report consuming substantial amounts of alcohol. Qualitative research directly investigating consumption amongst those most at risk sportspeople, have found alcohol provides a method of bonding and group acceptance and that alcohol tolerance (being able to consume large quantities of alcohol on a single occasion) is key to social inclusion (Sparkes, Partington & Brown, 2007; Clayton & Harris, 2008). It is evident that university students, particularly those immersed within sporting culture, feel excessive alcohol consumption is the social norm and is key to social integration (Kypri & Langley, 2003; Sparkes, Partington & Brown, 2007; Clayton & Harris, 2008; Zhou & Heim, 2016). However, little is known about the micro-level mechanisms underpinning this desire

to be accepted within such contexts. As a consequence, there is a paucity of effective interventions available to reduce levels of consumption (Foxcroft et al., 2015).

Intrasexual competition and Substance Use

Sexual selection was first proposed by Darwin (1859) and developed into a coherent theoretical position by Darwin (1871). Darwin proposed that specific traits, characteristics or behaviours which are detrimental to survival (such as the peacock's tail) evolve as they serve an individual's need to reproduce. Intrasexual competition refers to competition with same-sex individuals for access to individuals of the opposite sex (Rosvall, 2011). Trivers (1972) expanded on Darwin's theory of sexual selection to provide an important mechanism by which selection operates. Trivers proposed that the parental investment which a member of a sex provides to its offspring will dictate the direction by which intrasexual competition operates. Trivers elaborated that as males invest less in their offspring compared to females they should develop more competition for mates with same sex individuals.

It has since been highlighted, however, that this previous hypothesis is far too simplistic for modern humans (c.f. Buss, 1999; Rosevell, 2011). Buss (1999) opposes that in humans, whilst females may choose males for their willingness to invest; financially, socially and emotionally due to the increased parental investment which exists, males will also show preference for females with powerful cues of reproductive value. As a result, it is predicted that both men and women exert choice in future mates and therefore intrasexual competition operates for both sexes. This hypothesis is supported by a wealth of empirical evidence (cf. Buss & Barnes, 1986; Hudson & Henze, 1969; Buss, 1987; Clutton-brock, 2007; Brown et al., 2009; Stockley & Bro-Jørgensen, 2011). However, scholars have more recently shed a light on the individual differences in intrasexual competition between both sexes (c.f. Buunk & Fisher, 2009). Whilst males tend to be more physically aggressive and throughout human

history have competed primarily for status, resource and dominance, women are typically more verbally aggressive and have prioritised physical attractiveness (Cashdan, 1998; Campbell, 2002; Dijkstra & Buunk, 2002).

Recent evidence has highlighted intrasexual competition as a potential influence on anabolic androgenic steroid use (Harris et al., 2016; 2017). The authors discovered levels of intrasexual competition were significantly greater for users of anabolic-androgenic steroids when compared to non-using bodybuilders. The current study hypothesises that intrasexual competition may be associated with other substance use behaviours which are desirable within a specific environment. Alcohol consumption dominates university culture and student experience and is perceived to be a desirable behaviour, particularly being able to consume alcohol in large quantities on a single occasion (Clayton & Harris, 2008). Therefore, it is plausible that intrasexual competition is a motivating dynamic which may underpin alcohol consumption throughout university campuses, where consumption is perceived to be the socially desirable norm. Furthermore, the strength of the relationship between intrasexual competition and alcohol consumption may be greater in environments where the density of same-sex individuals, and thus perceptions of the degree of competition, is greater. One such environment exists within university sporting groups.

The Current Study

The aim of the current study was to explore the relationship between alcohol consumption and intrasexual competition in a sample of university students, and further examine the possible interaction between both factors with sporting status. It is hypothesised that intrasexual competition will be positively associated with alcohol consumption, and that the relationship will be stronger for students who participate in sport.

Methodology

Participants:

The sample consisted of N=308 students recruited from one university in Wales, United Kingdom. Following the removal of participants who did not complete the AUDIT or Intrasexual Competition Scale in full (N=85), a final sample of 223 students was available for analysis (N= 131 sportspeople and N= 92 non-sportspeople). Participants had a mean age of 21 which ranged from 18 to 55, were more likely to be of white ethnic background (91%) and be female (56%).

Outcome Measures:

Participant's alcohol use was measured using the Alcohol Use Identification Test (AUDIT), a 10-item measure of alcohol use and related harm. There is a comprehensive evidence-base for the validity and reliability of the AUDIT in diverse settings (Reinert & Allen, 2007; Fleming, Barry & Macdonald, 1991; Kokotailo et al., 2004). The AUDIT has been found to demonstrate a high degree of internal consistency (median reliability coefficient of 0.83, with a range of 0.75 to 0.97) (Reinert & Allen, 2007), construct validity (Cronbach's α reliability coefficient of 0.69) and test-retest reliability (0.98) (Bergman and Kallmen, 2002). Intrasexual competition was measured using the ICS (Buunk and Fisher, 2009). The ICS is a 12-item questionnaire which measures the degree of competitiveness with which one views confrontation with same-sex individuals, especially in the context of acquiring contact with the opposite sex. Participants were asked to indicate on a 5-point scale, how much statements about their intrasexual competition tendency were applicable to them (1 = not applicable at all, 5 = very much applicable). Examples are, 'I can't stand it when I meet another man who is more attractive than I am' and 'I wouldn't hire a very attractive man as a colleague' (Cronbach's α = 0.83, M = 3.30 (standard deviation (SD) = 0.78)). There is considerable empirical support demonstrating validity of the ICS as a measurement of intrasexual competition (i.e.

Arnocky et al., 2014; Buunk and Fisher, 2009; Buunk and Massar, 2012; Lereya et al., 2014; Ponzi et al., 2015).

Overview of Analyses:

A two-way between-subjects analysis of variance (ANOVA) was conducted with factors of AUDIT risk category and sporting status. Audit risk category had 4 conditions: low, hazardous, harmful and probable dependence, and sporting status had two conditions: sport participant and non-sport participant.

Procedure

Between October 1st and December 1st, 2017, a survey was distributed electronically via the head coach of each sporting code at the university and via blanket student emails. A prize draw for £50 Amazon vouchers was offered to incentivize survey completion. Ethical approval was granted by Cardiff Metropolitan University, School of Sport Research Ethics Committee (Ref. 17/3/02R).

Results

In total, N=124 females and 99 males were available for analysis (N= 131 university sportspeople and N=92 university non-sportspeople). Sample characteristics are provided in table 1.

Table 1: Patterns of alcohol consumption and intrasexual competition

Sample characteristics	Final sample n=223 (who completed AUDIT in full)
Audit (Mean & SEM)	
Overall Sample	11.91 (.445)
Male	13.08 (.644)
Female	10.97 (.602)
Sport	13.13 (.584)
Non-sport	10.16 (.648)

AUDIT Risk Categories (percentage)

Low	26%
Hazardous	50%
Harmful	13%
Probable Dependence	12%

Intrasexual Competition

Overall	18.99 (.479)
Male	20.26 (.729)
Female	17.97 (.624)
Sport	19.57 (.656)
Non-sport	18.15 (.685)

Data were subjected to a two-way between-subjects analysis of variance (ANOVA) with factors of AUDIT risk category and sporting status. Results showed a significant main effect of AUDIT risk category on intrasexual competition ($F(3, 215) = 6.012, p = 0.001$). Pairwise comparisons showed that intrasexual competition was significantly higher for participants in the probable dependence AUDIT group when compared with those in the low risk and hazardous AUDIT groups. Results showed no significant main effect of sport on intrasexual competition ($F(1, 215) = .392, p > 0.05$), however, for non-sportspeople, results showed a significant main effect of AUDIT risk category on intrasexual competition ($F(3, 88) = 5.741, p = 0.001$). Pairwise comparisons showed that intrasexual competition was significantly higher for participants in the probable dependence AUDIT group when compared with those in the low risk and hazardous AUDIT groups. Whereas for sportspeople, results did not show a significant main effect of intrasexual competition on AUDIT risk category ($F(3, 127) = 1.443, p > 0.05$) (See Figure 1). Results did not show a significant main effect of gender on intrasexual competition scores for sportspeople ($F(1, 123) = .229, p > 0.05$), or for non-sportspeople ($F(1, 84) = .027, p > 0.05$).

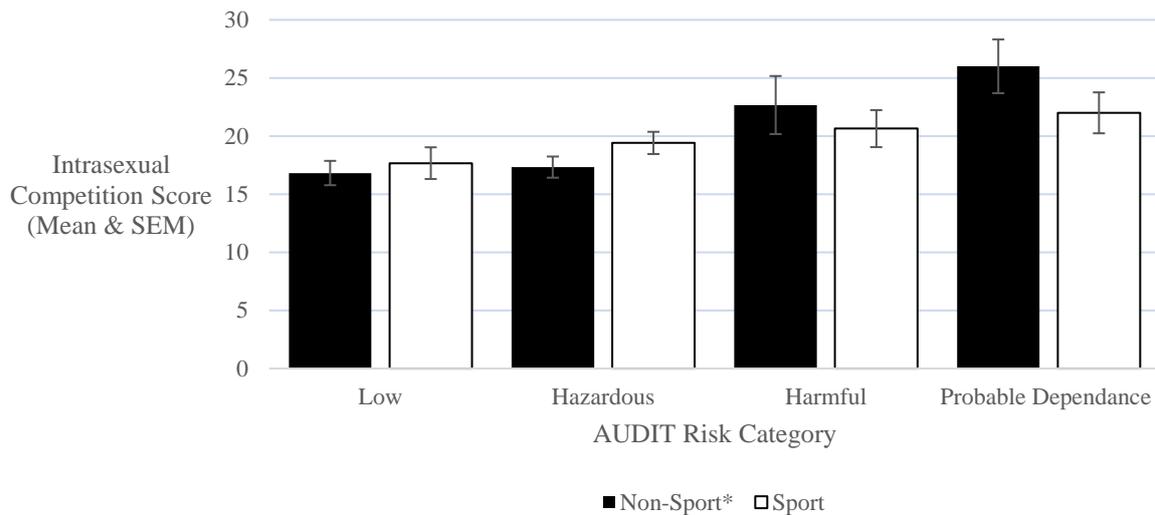


Figure 1. Showing levels of Intrasexual Competition across AUDIT risk categories

*Significant main effect (P=0.001)

Discussion

The aim of the current study was to explore the relationship between alcohol consumption and intrasexual competition in a sample of university students, and further examine the possible interaction between both factors with sporting status. The data revealed a positive relationship between intrasexual competition and alcohol use, irrespective of sporting status. Further inspection of the data revealed no significant relationship between levels of intrasexual competition and degree of alcohol related risk for sporting students. However, there was a significant relationship between intrasexual competition and alcohol-related risk for students who did not partake in university sport.

It was hypothesised that the dominant perception that alcohol consumption is key to social acceptance may interact with pre-existing inflated levels of intrasexual competition to increase levels of alcohol consumption among certain students. It was further speculated that sporting environments, with a higher density of ‘competing’ same sex individuals may exacerbate the hypothesised relationship between intrasexual competition and alcohol use. Whilst we found evidence that intrasexual competition may be related to alcohol

consumption for university students, this finding did not hold true for those who play university sport. Therefore, rather than a high-density of competing individuals functioning to exacerbate levels of alcohol consumption, the findings presented above suggest the contrary, that a high-density of competing individuals may be protective against the relationship between both factors.

Previous research by Harris et al. (2016; 2017) discovered that male bodybuilders who used anabolic androgenic steroids (AAS) reported significantly higher levels of intrasexual competition than bodybuilders who did not use these substances although were exposed to the same environment. The current study broadens this evidence base by demonstrating intrasexual competition may also be related to other substance use behaviours, specifically excessive alcohol consumption. Furthermore, the findings of the current study were irrespective of gender, thus supporting accumulating evidence which suggests sexual selection may operate for both men and women (Buss & Barnes, 1986; Hudson & Henze, 1969; Buss, 1987; Clutton-brock, 2007; Brown et al., 2009; Stockley & Bro-Jørgensen, 2011). The finding that intrasexual competition was not related to alcohol consumption for university sportspeople also provides novel insight into previous investigations. The findings reported by Harris et al. were based predominantly on a sample who did not play formal organised sport, excluding bodybuilding. It would be intriguing to explore if the intrasexual competition/AAS use relationship is replicable to a sample of AAS using sportspeople.

The finding that intrasexual competition was not related to alcohol related harm for sportspeople warrants further explanation and investigation. It may be that the social identity processes which come with sports participation (see Zhou et al., 2016^a; 2016^b) remove the individualist nature of intrasexual competition which therefore operates at a collective level. Prior research has discovered sportspeople often see themselves as a collective unit (Sparkes et al., 2007), therefore sexual selection may operate at the level of the group (i.e. the rugby

team) rather than at the level of the individual (i.e. the player). In this instance, the survival of the group would take preference over the survival of the individual. However, such ideas are highly speculative, and more research is needed, particularly given the premature nature of the evidence base for both alcohol consumption by student sportspeople and for the relationship between intrasexual competition and substance (mis)use.

Limitations and Future Directions

The findings of the current study are all derived from self-reported measures of alcohol consumption and intrasexual competition, therefore there is the unavoidable question of how honest participants are when disclosing personal and emotional information. That said, the current study utilised an anonymous online platform to distribute the survey instruments which was intended to maximise the honesty by which participants responded (Duffy et al., 2005). As with any study employing a cross-sectional design, cause and effect cannot be established. An alternative explanation could be that those who consume greater amounts of alcohol also report higher levels of intrasexual competition. It is worth noting that the data for the current study was collected during the university sport season and research carried out on US collegiate students has identified elevated alcohol consumption during the sporting off-season (Doumas et al. 2007; Hummer et al. 2009). However, alcohol usage patterns by UK university students throughout the sporting season is currently unexplored.

Future research would be astute to investigate the potential influence of intrasexual competition on other substance use behaviours, aside from anabolic androgenic steroid use and excessive alcohol consumption. Furthermore, very little is known about how intrasexual competition may function to influence substance use behaviours over time given its recent introduction to the field. Therefore, the stability of intrasexual competition over time, and the relationship this has with fluctuations in substance use would be a worthwhile exploration.

More research is needed into the factors which underpin consumption by this at-risk group if successful preventative measures are to be established and implemented. Given that the current evidence-base lacks a robust foundation, such endeavours may be more fruitfully approached using a qualitative perspective that focuses on revealing the social mechanisms which operate to influence consumption when students spend a substantial portion of their time in large, social groups.

The finding that intrasexual competition may be related to excessive consumption by university students, suggests future interventions include an element which raises awareness of the negative perception of drunkenness held towards potential mates. Prior to such interventions, the evidence base would also benefit from research exploring if the relationship identified here operates at a conscious level and therefore if male and female students report excessive drinking as an attractive trait in potential mates.

Conclusions

The findings of the current study provide novel evidence that intrasexual competition may be related to other substance use behaviours, aside from anabolic androgenic steroid use.

However, the findings here suggest that the relationship between both factors may be more complex than previously suggested. Intrasexual sexual may play a role in excessive alcohol consumption by university students, however sports participation may be protective against this relationship. There is an immediate need to study this latter, at-risk subgroup in more detail, and the current study suggests such investigations warrant a qualitative design focussed on the social, rather than individual factors as explored here.

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