Female alcohol consumption, motivations for aggression and aggressive incidents in licensed premises

Michelle Newberry a,⁎, Nikki Williams b, Laura Caulfield b

a Department of Psychology, Sociology and Politics, Sheffield Hallam University, Collegiate Crescent, Sheffield, S10 2BP, UK
b Department of Psychology, Birmingham City University, Perry Barr, Birmingham, B42 2SU, UK

HIGHLIGHTS

► Alcohol consumption and aggressive incidents in licensed premises were examined.
► Females involved in aggressive incidents had consumed more alcohol.
► Females involved in such incidents had not consumed more male-oriented drinks.
► Verbal aggression was more common than physical aggression in licensed premises.
► Aggression was commonly motivated by the desire to address a grievance.

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ABSTRACT

Research into the relationship between alcohol and aggression has previously focused on men. However, in recent years there has been an increase in binge drinking and violent crime among women, behaviours which have been labelled 'ladette' culture in the UK. The current study advances the literature in this area by investigating the relationship between alcohol consumption and aggressive behaviour of females in licensed premises, including the type of aggression and motivations for aggressive incidents. Ninety-three female university students completed the Student Alcohol Questionnaire (SAQ; Engs, 2002), the Aggression Questionnaire (Buss & Perry, 1992) and a questionnaire developed to measure self-reported aggressive incidents. Females who had been involved in an aggressive incident reported spending more time on average in licensed premises per week and higher levels of aggression as well as consuming significantly more alcohol on the day of the incident than females who had not been involved in an aggressive incident. Contrary to expectations, however, those who had been involved in an aggressive incident did not report drinking more beer (a male-orientated drink) than those who had not. Verbally aggressive incidents were reported more than physically aggressive incidents, and aggression was commonly motivated by an emotional reaction or to address a grievance. The finding that average alcohol consumption per week was significantly associated with female aggression in licensed premises highlights the importance of developing interventions to reduce alcohol consumption among young females.

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1. Introduction

In recent years the media has provided extensive reports on alcohol related crime, particularly the rise of aggressive incidents occurring in licensed premises (The Daily Mail, 2009; The Guardian, 2011; The Telegraph, 2011), and numerous studies have reported a link between alcohol consumption and violence. Saner and Ellickson (1996), for example, found that violent delinquents consumed more alcohol than non-violent delinquents, and Richardson and Budd (2003) reported that one in five violent incidents occurs either in or around licensed premises. Furthermore, research has shown that victims believed that the offender was under the influence of alcohol in 50% of violent incidents (Flatley, Kershaw, Smith, Chaplin, & Moon, 2010).

The number of women convicted of violent crimes in England and Wales has almost doubled since the 24-hour drinking laws emerged in 2004, an epidemic for which the British media blame the recent rise of the 'ladette' culture (The Daily Mail, 2008, 2010; The Telegraph, 2009). Ladettes are described as women who display typically male characteristics such as assertive, tough and aggressive behaviour as well as drinking large quantities of alcohol, particularly those beverages which were previously perceived to be male-orientated drinks (Mercer & Khavari, 1990).

The emergence of the ladette culture could be attributable to a number of factors. In Britain alcohol has become increasingly accessible
in the number of people aged 20
2009, 2010). In particular, there has been a noticeably large increase
struggle to cope with rising demands (Institute of Alcohol Studies,
the rise in the number of young women being admitted to hospital
allowance. It is important to address these behaviours because of
mately four bottles of wine), which is well over the recommended
1.1. Theories of the link between alcohol consumption and aggression

Graham (1980) proposed that theories which attempt to explain
the link between alcohol and aggression could be separated into
four categories according to the role assigned to alcohol: alcohol di-
rectly causes aggression; alcohol indirectly causes aggression; alcohol
indirectly causes aggression when associated with particular motives
for drinking; and a spurious link between alcohol and aggression.

Firstly, the disinhibition theory purports that aggression is facilitated
by the direct anaesthetising effect of alcohol on the brain which usually
prevents aggressive responses because of the reduced inhibitions which
humans generally display while intoxicated. Alcohol potentiates the
inhibitory neurotransmitter gamma-aminobutyric acid (GABA) which in
turn reduces the effects that fear and anxiety have on inhibiting aggres-
sion. This provides an increased likelihood that individuals who have
consumed alcohol to levels of intoxication will respond aggressively
when faced with a threat (Warneke, 1991). Although the disinhibition
theory is supported by laboratory evidence, it does not explain why
some individuals experience increased levels of aggression whilst
under the influence of alcohol whereas other individuals do not
(Boyardakis, 1974; Tomsen, 1997).

Secondly, theories which propose that alcohol indirectly causes ag-
gression are underpinned by the notion that alcohol produces changes
in physiology, emotions and cognitions which in turn increase the like-
lihood of aggression occurring. The consumption of alcohol has been
found to increase emotional instability and impair cognitive functioning
(Lyvers & Tobias-Webb, 2010; Pihl, Paylan, Gentes-Hawn, & Hoaken,
2003) as well as to reduce awareness (Pernanen, 1976). In some
individuals, these changes may result in an increase in risk-taking
behaviour and a decreased ability to respond to situations in a non-
aggressive manner. These direct and indirect physiological theories
have been challenged by the expectancy theory which proposes that ag-
gression is influenced by alcohol due to people’s expectations about
how their behaviour will change when they are under the influence of
alcohol (Lang, Goecnner, Adesso, & Marllt, 1975).

Thirdly, there are theories which propose that alcohol provides an
indirect cause of aggression conditional upon an individual’s motive
for drinking i.e. particular motives which lead people to consume al-
cohol interact with the effects of alcohol and lead to aggression.

Finally, it has been suggested that there is a spurious link between
alcohol and aggression which is based upon interactions between the
characteristics of individuals who drink, the situation in which they
consume alcohol, and aggression (Graham, 1980; Graham,
West, & Wells, 2000). For example, studies have indicated that tem-
perature (Anderson, 1989; Baron & Bell, 1975; Bell, 2005; Bushman,
Wang, & Anderson, 2005), noise (Konecni, 1975) and population
density (Griffitt & Veitch, 1971) may influence human aggression.
Research has also found that alcohol related aggression is most likely
to occur in bars, pubs, clubs and other public drinking establishments
e.g. Graham, Bernards, Osgood, & Wells, 2006) and that elements of
the drinking environment can be a contributing factor in aggressive
incidents. For example, Deehan (1999) found that licensed premises
which are attractive and well-maintained have fewer incidents of vi-
olence, whilst places which promote discounted drinks have more.

1.2. Motivations for aggression in licensed premises

Most research into the motivations for aggressive incidents in li-
censed premises has focused on males (e.g. Cohen, Nisbett, Bowdle,
& Schwarz, 1996; Giancola & Zeichner, 1997; Lang et al., 1975), and
Graham and Wells (2003) identified four motivations in the literature
which they considered to be particularly relevant to male aggression
in licensed premises: male honour; addressing a grievance; an emo-
tional reaction; and fighting for fun. Male honour refers to face saving
or the protection of one’s reputation when faced with insults or per-
sonal attacks. Studies have indicated that aggressive confrontations
often arise when a male has been insulted and feels that they have to
maintain their social honour and masculine identity (Archer,
Holloway, & McLoughlin, 1995; Felson, 1982; Iwamoto, Cheng, Lee,
Takamatsu, & Gordon, 2011). However, interviews with young men
involved in aggressive incidents in licensed premises have indicated
that ‘winning’ a fight is not as important as maintaining an impres-
sion of masculinity and standing one’s ground (Tomsen, 1997).
Addressing a grievance reflects aggression that aims to bring about jus-
tice or rectify an issue following the actions of another individual
which are perceived to be unjustified (Tedeschi & Felson, 1994), al-
though this motivation can also be altruistic through acting as an
aid to a friend (Berkowitz, 1986). An emotional reaction refers to ag-
gression as an emotional response driven by anger or frustration.
This anger or frustration may be a response to situational factors asso-
ciated with licensed premises such as heat and overcrowding, which
alcohol can exacerbate. Finally, fighting for fun refers to aggressive
behaviours such as swearing, pushing and being rowdy which are
perceived as being part of the pleasurable experience of collective
male drinking sessions (Tomsen, 1997).

1.3. Female aggression in licensed premises

Given an increase in ‘lady’ culture and studies which have shown
that women have the potential to be as equally aggressive as men
(Hoaken & Pihl, 2000), it is important to understand female aggression
in licensed premises. In one of the few studies to investi-
gate licensed premises aggression among females, Spence, Williams,
and Cannon (2009) examined whether women who had behaved ag-
gressively in licensed premises (n = 29) could be distinguished from
those who had not \(n = 28\) on the basis of their drinking habits and self-reported levels of aggression. Females who had been involved in an aggressive incident reported consuming significantly more alcohol on average per week (including more male-oriented drinks such as beer) and received higher scores on The Aggression Questionnaire (Buss & Perry, 1992) than those who had not.

Spence et al. (2009) also examined the motivations for participants’ aggressive behaviour during a semi-structured interview which focused on the presence or absence of the four motivations for aggressive behaviour identified by Graham and Wells (2003) in their research involving males (male honour, addressing a grievance, an emotional reaction, and fighting for fun). Three out of four of these motivations were identified in Spence et al.’s female sample. Incidents primarily motivated by face saving \(n = 4\) involved the participant feeling disrespected by their opponent and behaving aggressively as a way of protecting their image. Incidents motivated by addressing a grievance \(n = 10\) involved the participant feeling that their opponent’s behaviour was wrong or insulting to them or their friends, and incidents motivated by an emotional reaction \(n = 6\) typically involved the participant expressing pent up aggression. A fourth motivation not previously identified by Graham and Wells (2003) was that of trying to stop a fight \(n = 2\).

The findings of Spence et al.’s (2009) study further our understanding of the drinking patterns of females involved in licensed premises aggression and the motivations behind their aggressive behaviour. However, as the authors note, the study did not assess the context of participants’ drinking and so it could not be determined whether it was the quantity of alcohol consumed or the amount of time participants spent in licensed premises which increased their likelihood of behaving aggressively. This is important since previous research has reported that factors such as noise and large numbers of intoxicated individuals can lead to aggression (e.g., Homel & Clark, 1994), and the longer an individual spends in licensed premises, the more likely they are to be exposed to these factors.

The present study sought to expand upon Spence et al.’s research by asking participants to estimate how much time they spend in licensed premises on average per week and, for those who were involved in an aggressive incident, how much alcohol they had consumed on the day or evening of the incident (and whether this was more or less than they would normally consume on a typical night out). It was hypothesised that participants who had been involved in an aggressive incident would report spending significantly more time in licensed premises, consume more alcohol on average per week, and tend to drink more male-oriented drinks than those who had not been involved in an aggressive incident. It was also hypothesised that participants who had been involved in an aggressive incident would report consuming considerable amounts of alcohol on the day or evening of the incident. In light of the fact that only 41% of participants \(n = 12\) classified as “fighters” in Spence et al.’s (2009) study agreed to participate in a semi-structured interview regarding the motivations for their aggressive behaviour, we developed a questionnaire with the aim of collecting this data from a larger number of participants.

2. Method

2.1. Participants

Participants were recruited via posters on the authors’ two university campuses and via the social networking site Facebook which requested female participants aged 16 or over to take part in a study investigating female aggression in licensed premises. Ethical approval was granted by the authors’ University ethics committees.¹

² The SAQ asks the respondent to rate how often they consume each type of alcoholic beverage on a scale of 1 (everyday) to 7 (never). The data must then be recoded in order for the SAQ score to be calculated. There are different recommendations for recoding the data, but we followed the recommendation of Engs (2003) as follows: 1. Everyday = 7.0; 2. At least once a week but not every day = 3.5; 3. At least once a month but less than once a week = 3.0; 4. More than once a year but less than once a month = 1.2; 5. Once a year or less/6. Not during a year or less/7. Never = 0.

93 participants consented to take part in the study, although 9 participants did not fully complete the measures and so they were excluded from the analyses. Participants in the final sample \(N = 84\) were aged between 18 and 33 \((M = 22.12, SD = 3.17)\).

2.2. Measures

2.2.1. Alcohol consumption

The Student Alcohol Questionnaire (SAQ; UK English Version, Engs, 2002) was used to measure participants’ quantity and frequency of alcohol consumption. The original SAQ developed by Engs (1975) contains four subscales concerned with the frequency and quantity of drinking, problems resulting from drinking alcohol, knowledge of alcohol, and attitudes toward drinking, all of which have a high level of reliability (Cronbach’s alphas of .86, .92, .86, and .55, respectively; Engs & Hanson, 1994). The UK expanded version of the SAQ includes a section concerning drug use which is not included in the original version of the measure and calculates alcohol consumption in terms of units per week as defined by the UK (Engs, 2003). For the first subscale (frequency and quantity of drinking) four separate beverage subscale scores are calculated by multiplying the frequency of alcohol consumption² by the number of drinks consumed on an average day as stated by the respondent for the given beverage. In keeping with Spence et al. (2009) we added three additional questions relating to the consumption of alcopops and only analysed data from the nine questions relating to the quantity and frequency of (1) beer/lager/cider, (2) wine, (3) spirits and (4) alcopops. The total SAQ score (the amount of alcohol consumed in an average week) is calculated by totalling the sum of the four beverage subscales.

2.2.2. Levels of aggression

The Aggression Questionnaire (Buss & Perry, 1992) was used to measure participants’ levels of aggression. Four types of aggression are assessed by 29 statements, each scored on a Likert scale from 1 (extremely uncharacteristic of me) to 5 (extremely characteristic of me). The four subscales are physical aggression, verbal aggression, anger and hostility. The physical aggression subscale contains nine statements such as ‘Given enough provocation I may hit another person’ and has a maximum score of 45. The verbal aggression subscale contains five statements such as ‘I can’t help getting into arguments when people disagree with me’ and has a maximum score of 25. The anger subscale has seven statements such as ‘I have trouble controlling my temper’ with a maximum score of 35 and the hostility subscale has eight statements such as ‘When people are especially nice I wonder what they want’ with a maximum score of 40. Statement scores are tallied giving a score for each of the four subscales and a total aggression score from 29 to 145 is calculated by totalling the four subscales, with higher scores indicating higher levels of aggression. The measure possesses a high level of internal reliability with an alpha coefficient of .89 for the total score (Buss & Perry, 1992).

2.2.3. Self-reported aggressive incidents

Spence et al. (2009) conducted semi-structured interviews to obtain information about participants’ incidents of aggression in licensed premises. However, in order to gather data from a larger number of participants, we developed a questionnaire especially for the current study which we refer to hereafter as the Self-Reported Aggressive Incidents Questionnaire. The first two questions asked participants how much time they spent in licensed premises (how
many days on average per week and for how many hours). The third question asked respondents to indicate ‘yes’ or ‘no’ to whether they had ever been involved in either a physically or verbally aggressive incident in licensed premises. Those who responded ‘no’ were asked not to complete the remainder of the questionnaire. Those who responded ‘yes’ were directed to a further 15 questions which requested information about the context and motivations for the incident. These questions included whether the incident was of a verbally or physically aggressive nature, the gender(s) of the opponent(s), the motivations of the participant and opponent(s), how much time the participant had spent in licensed premises on the day of the incident, where the incident had taken place, what type of alcoholic beverage the participant had been drinking, how many units of alcohol the participant had consumed and whether this was more, less or the same as they would normally consume on a typical night out, and whether any drugs had been taken along with the alcohol.

This measure was developed in order to obtain information surrounding the circumstances of aggressive incidents not level of aggression (the latter was measured using The Aggression Questionnaire described above). All questions had categorical response options apart from the final question which asked the respondent to write down any further information which they feel is relevant to the aggressive incident which is not covered by one of the preceding questions. Each question measures different phenomena (e.g. time spent in licensed premises, whether or not the participant was involved in an aggressive incident, whether the other person involved in the aggressive incident was male or female, what they felt was the main motivation for the aggressive incident, etc). The responses to each question are categorical in nature and the values are not added together to yield a total self-reported aggressive incident score. It is therefore not possible to report the measure’s internal consistency as the questions do not seek to measure the same underlying construct.

2.3. Procedure

Participants were provided with an information sheet which explained the purpose of the study before being asked to sign a consent form. They were then asked to complete the Student Alcohol Questionnaire, The Aggression Questionnaire and the Self-reported Aggressive Incidents Questionnaire. Following this, participants were given a debriefing form which reminded them of the purpose of the study and that their data would remain confidential. Participants were also reminded of their right to withdraw from the study. Data were analysed using SPSS Version 17.0.

3. Results

3.1. Sample characteristics

Of the 84 participants in the final sample, 37 reported that they had been involved in an aggressive incident in licensed premises at some point in the past (we named this the ‘aggressive’ group) and 47 participants reported they had never been involved in such an incident (the ‘non-aggressive’ group). Participants in the aggressive group were aged between 19 and 33 years ($M=23.41, SD=3.59$) and those in the non-aggressive group were aged between 18 and 32 years ($M=21.32, SD=2.86$).

3.2. Alcohol consumption

Independent-samples t-tests revealed that participants who had been involved in an aggressive incident reported consuming significantly more alcohol during an average week than those who had not (SAQ total beverage score $M=31.24$, $SD=31.15$ vs. $M=11.99$, $SD=14.66$, $t(82)=3.75$, $p<.00$, $d=.79$). Aggressive participants also reported spending significantly more time in licensed premises on average per week than non-aggressive participants ($M=4.70$ h, $SD=2.53$ vs. $M=3.13$ h, $SD=1.77$, $t(82)=3.36$, $p<.00$, $d=.72$).

A chi-square test of association revealed that there was no significant difference between the proportion of aggressive participants who consumed beer (a male-oriented drink) compared to the proportion of non-aggressive participants who consumed beer: 54.05% ($n=20$) of the aggressive group reported that they consumed beer compared to 55.3% ($n=26$) of the non-aggressive group ($\chi^2 (1) = .00$, $p>.05$). In addition, an independent-samples t-test showed that participants who reported drinking beer did not consume significantly more alcohol on average per week than those who did not drink beer ($M=24.45$, $SD=26.08$ vs. $M=15.65$, $SD=23.40$, $t(82)=-1.61$, $p>.05$, $d=.36$).

3.3. Levels of aggression

Independent-samples t-tests were conducted to investigate whether the level of self-reported aggression differed between participants who reported being involved in an aggressive incident and those who had not. Mean scores for the four subscales and the total score of The Aggression Questionnaire are reported for the two groups in Table 1. Participants who had been involved in an aggressive incident had significantly higher scores than those who had not on all four of the aggression subscales (physical aggression, verbal aggression, anger and hostility) as well as the total aggression score. Effect sizes ranged from medium to large (Cohen’s $d=.56$ to .87).

3.4. Correlations between alcohol consumption and aggression

Pearson product–moment correlations between average alcohol consumption per week (SAQ total score), average time spent in licensed premises per week, self-reported aggression (Aggression Questionnaire: physical aggression, verbal aggression, anger, hostility and total aggression scores), aggressive incidents (involved in an aggressive incident vs. not involved in an aggressive incident) and age are shown in Table 2.

As expected, there was a significant strong positive correlation between average alcohol consumption per week and average time spent in licensed premises per week. There were also significant moderate positive correlations between average alcohol consumption per week and self-reported aggression (physical aggression, verbal aggression, anger, hostility and total aggression scores) as well as aggressive incidents.

Table 1

<table>
<thead>
<tr>
<th>Aggression scale*</th>
<th>Aggressive incident ($n=37$)</th>
<th>No-aggressive incident ($n=47$)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>M</td>
<td>SD</td>
</tr>
<tr>
<td>Physical aggression</td>
<td>26.51</td>
<td>9.35</td>
</tr>
<tr>
<td>Verbal aggression</td>
<td>20.00</td>
<td>6.88</td>
</tr>
<tr>
<td>Anger</td>
<td>23.16</td>
<td>7.97</td>
</tr>
<tr>
<td>Hostility</td>
<td>25.49</td>
<td>10.41</td>
</tr>
<tr>
<td>Total aggression</td>
<td>95.22</td>
<td>23.77</td>
</tr>
</tbody>
</table>

* Aggression scales are those measured by The Aggression Questionnaire (Buss & Perry, 1992).
3.5. The association of Aggression Questionnaire scores with alcohol consumption and time spent in licensed premises

A multiple regression analysis was performed to investigate whether average alcohol consumption per week (SAQ total beverage consumption) and average time spent in licensed premises per week were associated with participants’ total score on The Aggression Questionnaire. These variables were entered into the model using the ‘enter’ method. The overall model explained 17% of the variance in total aggression (adjusted $R^2 = .17$, $p < .01$). The unstandardised coefficients (and their standard errors) and the standardised coefficients for each variable are reported in Table 3. Average alcohol consumption per week made a significant unique contribution to the model but average time spent in licensed premises per week did not.

3.6. The association of aggressive incidents in licensed premises with alcohol consumption and time spent in licensed premises

Although a multiple regression analysis revealed that average alcohol consumption per week was significantly associated with an individual’s total score on The Aggression Questionnaire, we also conducted a logistic regression analysis to investigate whether average alcohol consumption per week and time spent in licensed premises per week were significantly associated with aggressive incidents in licensed premises. These variables were entered into the model using the ‘enter’ method. The model significantly improved upon the null model, $\chi^2 (2) = 15.96$, $p < .001$; although only one of the predictor variables (average alcohol consumption per week) made a unique significant contribution to the model. The individual parameter estimates are reported in Table 4. The model correctly classified 65.5% of the participants as who had been involved in an aggressive incident (see Table 5).

### Table 2
Correlations between alcohol consumption, time spent in licensed premises, self-reported aggression scores, aggressive incidents and age ($N = 84$).

<table>
<thead>
<tr>
<th>Variable</th>
<th>Ave. alcohol consumption (p/w)</th>
<th>Ave. time in licensed premises (p/w)</th>
<th>Physical aggression</th>
<th>Verbal aggression</th>
<th>Anger</th>
<th>Hostility</th>
<th>Total aggression</th>
<th>Age</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ave. alcohol consumption p/w</td>
<td>1.00</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Ave. time in licensed premises p/w</td>
<td>.57**</td>
<td>1.00</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Physical aggression</td>
<td>.38</td>
<td>.17</td>
<td>1.00</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Verbal aggression</td>
<td>.39**</td>
<td>.14</td>
<td>.32**</td>
<td>1.00</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Anger</td>
<td>.24**</td>
<td>.18</td>
<td>.47**</td>
<td>.64**</td>
<td>1.00</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Hostility</td>
<td>.34**</td>
<td>.14</td>
<td>.33**</td>
<td>.35**</td>
<td>.51**</td>
<td>1.00</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Total aggression score</td>
<td>.44**</td>
<td>.24</td>
<td>.70**</td>
<td>.71**</td>
<td>.85**</td>
<td>.77**</td>
<td>1.00</td>
<td></td>
</tr>
<tr>
<td>Aggressive incident yes/no</td>
<td>.38**</td>
<td>.35**</td>
<td>.32**</td>
<td>.34**</td>
<td>.32**</td>
<td>.27</td>
<td>.40**</td>
<td>1.00</td>
</tr>
<tr>
<td>Age</td>
<td>−.04</td>
<td>−.13</td>
<td>.06</td>
<td>.01</td>
<td>−.04</td>
<td>.05</td>
<td>.02</td>
<td>.13</td>
</tr>
</tbody>
</table>

Note. Ave. = Average; p/w = per week; point-biserial correlations were examined between the dichotomous variable ‘Aggressive incident yes/no’ (i.e. whether or not the participant had been involved in an aggressive incident) and other continuous variables (average alcohol consumption per week, average time spent in licensed premises per week, physical aggression, verbal aggression, anger, hostility and total aggression score).

* Significant at $p < .05$.

** Significant at $p < .01$.

### Table 3
Summary of multiple regression analysis for variables predicting aggressive incidents.

<table>
<thead>
<tr>
<th>Variable</th>
<th>$B$ (SE)</th>
<th>SE $B$</th>
<th>$\beta$</th>
</tr>
</thead>
<tbody>
<tr>
<td>Average alcohol consumption per week</td>
<td>.47**</td>
<td>.13</td>
<td>.46</td>
</tr>
<tr>
<td>Average time spent in licensed premises per week</td>
<td>−.30</td>
<td>1.41</td>
<td>−.03</td>
</tr>
</tbody>
</table>

Note. $R^2 = .20$; adjusted $R^2 = .17$ ($p < .01$); $B =$ unstandardised coefficient; SE = standard error; $\beta =$ standardised coefficient.

** $p < .01$.

3.7. Characteristics of aggressive incidents

3.7.1. Time spent in licensed premises on the day of the aggressive incident

On the day of the aggressive incident, the majority of participants (51.4%, $n = 19$) had spent between 3 and 5 h in licensed premises, over a third (35.1%, $n = 13$) had spent between one and 3 h in licensed premises, 10.8% ($n = 4$) had spent less than 1 h in licensed premises, and 2.7% ($n = 1$) had spent over 7 h in licensed premises on the day of the aggressive incident. The majority of participants who had been involved in an aggressive incident (70.3%, $n = 26$) had visited only one or two licensed premises on the day of the aggressive incident whereas the remainder (29.7%, $n = 11$) had visited between three and five licensed premises.

3.7.2. Quantity of alcohol consumed on the day of the aggressive incident

All participants who had been involved in an aggressive incident apart from one reported that they had consumed alcohol on the day of the aggressive incident. The majority of these individuals (48.7%, $n = 18$) had consumed more than eight units of alcohol, 29.7% ($n = 11$) had consumed between four and eight units, and 18.9% ($n = 7$) had consumed less than four units. The majority of aggressive females (64.9%, $n = 24$) reported that they had consumed a mixture of alcoholic beverages (beer, spirits and alcopops) on the day of the aggressive incident, 16.2% ($n = 6$) had consumed only spirits, 10.8% ($n = 4$) had consumed only beer, and 8.1% ($n = 3$) had consumed only alcopops. The majority of aggressive females (40.5%, $n = 15$) reported that they had consumed the same amount of alcohol as a usual night out on the day of the aggressive incident, 35.2% ($n = 13$) had consumed more

### Table 4
Summary of logistic regression analysis for variables predicting aggressive incidents.

<table>
<thead>
<tr>
<th>Variable</th>
<th>$B$ (SE)</th>
<th>Wald df</th>
<th>Exp (B)</th>
<th>95% CI for odds ratio (OR)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Constant</td>
<td>$-1.54$</td>
<td>$.50$</td>
<td>.21</td>
<td>.21</td>
</tr>
<tr>
<td>Average alcohol consumption per week</td>
<td>$.03$</td>
<td>$.01$</td>
<td>4.54</td>
<td>1.03</td>
</tr>
<tr>
<td>Average time spent in licensed premises per week</td>
<td>$.18$</td>
<td>$(.13)$</td>
<td>1.99</td>
<td>1.20</td>
</tr>
</tbody>
</table>

Note. $R^2 = .17$ (Cox & Snell), .23 (Nagelkerke).

** Significant at $p < .01$. 

** Significant at $p < .01$.
alcohol than usual and 24.3% \((n = 9)\) claimed that they consumed less than would normally drink on an average night out.

3.7.3. Type of aggression

The most common type of aggression reported by participants involved in an aggressive incident was verbal aggression \((59.5\%, n = 22)\), followed by an incident involving both verbal and physical aggression \((35.1\%, n = 13)\), followed by solely physical aggression \((5.4\%, n = 2)\).

3.7.4. Gender of opponent

More aggressive incidents involved a female \((43.3\%, n = 16)\) than a male \((37.8\%, n = 14)\), or both a male and a female \((18.9\%, n = 7)\). Unsurprisingly, the majority of participants reported that the other party (regardless of gender) had initiated the incident \((89.2\%, n = 33)\).

3.7.5. Motivations for aggressive incidents

Analysis of the data from our Self-Reported Aggressive Incidents Questionnaire identified all four motivations for aggression identified in the literature by Graham and Wells (2003). The most common motivations for an aggressive incident were addressing a grievance \((45.9\%, n = 17)\) or an emotional reaction \((45.9\%, n = 17)\), followed by face saving \((5.4\%, n = 2)\) and fighting for fun \((2.7\%, n = 1)\). In order to gain more insight into the motivations for aggressive incidents, participants were also asked what they perceived to be the other party’s motivation. Over a third of participants \((37.8\%, n = 14)\) believed that the other party became involved in the incident for fun, 29.7% \((n = 11)\) believed it was to address a grievance, 18.9% \((n = 7)\) believed it was to save face, and 13.5% \((n = 5)\) believed that it was because of an emotional reaction.

4. Discussion

4.1. Alcohol consumption and aggressive incidents

The finding that females who were involved in an aggressive incident reported consuming significantly more alcohol during an average week than those who had not supports previous research which has found that heavier drinkers are more likely to become involved in incidents of licensed premises aggression \((e.g. Graham & West, 2001; Graves, Graves, Seimu, & Sam, 1981)\). In addition, women involved in aggressive incidents had consumed a considerable amount of alcohol on the day or evening of the incident; over three quarters of these women had consumed more than the UK government’s recommended daily allowance of alcohol for women \((\text{more than half had consumed more than three times this amount})\) and were therefore likely to have been intoxicated at the time of the incident. Because those involved in aggressive incidents were heavier drinkers and more likely to be intoxicated, it cannot be determined whether being an overall heavy drinker or alcohol intoxication at the time of the actual incident had the most impact on aggressive behaviour. It is likely that intoxication at the time of the incident is of great importance, and as previous research \((e.g. Graham et al., 2006)\) has suggested, the link between heavy drinking and aggressive incidents could be attributable to heavy drinkers being more likely to be intoxicated at the time a potentially aggressive situation arises.

However, it was not possible to determine whether the participants were actually intoxicated at the time of the incident. In addition, because alcohol influences people differently, some participants who reported consuming less alcohol \((e.g. \text{two to four units})\) could have been more intoxicated than those who had consumed more alcohol \((e.g. \text{eight units or more})\). Future research could therefore investigate how much alcohol individuals had consumed and whether they considered themselves to be intoxicated \((\text{and to what extent})\).

Although females who had been involved in an aggressive incident were significantly heavier drinkers than some females who had not, some non-aggressive females may have occasionally consumed alcohol to the point of intoxication which could be a more important factor than simply the presence of alcohol \((Pernanen, 1993)\). An important question is why some people who drink until they are intoxicated do not feel a heightened level of aggression and in turn never find themselves involved in an aggressive incident. It is possible that some individuals may have a predisposition which causes those who are generally more aggressive to become increasingly aggressive when intoxicated.

Contrary to expectations and previous research \((e.g. Spence et al., 2009)\) women who reported being involved in an aggressive incident did not drink more male-oriented drinks \((e.g. \text{beer, lager, and stout})\) than those who had not. In fact, the majority of these women reported that they had consumed a mixture of beer, wine, spirits and alcopops on the evening of the incident which supports evidence which has pointed towards a greater tendency of women to drink a variety of alcoholic drinks, particularly spirits \((\text{NHS, 2010})\).

4.2. Time spent in licensed premises and aggressive incidents

Females who had not been involved in an aggressive incident reported spending more time in licensed premises in an average week than those who had not; the majority of non-aggressive females spent less than 5 h per week in licensed premises whereas aggressive females spent significantly longer \((\text{in some cases up to 30 h per week})\). However, it could not be determined whether this association was attributable to situational factors associated with licensed premises \((e.g. \text{crowding, high temperatures, and loud noise})\) which previous research has indicated may increase the likelihood of an individual becoming aggressive \((e.g. Anderson, 1989; Bell, 2005; Bushman et al., 2005)\).

4.3. Self-reported aggression and aggressive incidents

The finding that females who were involved in an aggressive incident scored significantly higher than those who were not on all four scales and the total score of the Aggression Questionnaire indicates that the more aggressive a female is in everyday life, the more likely they are to become involved in an aggressive incident in licensed premises. This is consistent with previous research which has found that aggression is the main component of violent incidents \((Bartol & Bartoi, 2008)\) and that individuals who are generally more aggressive are considerably more likely to become involved in violent or aggressive incidents \((Chermack & Giancola, 1997)\).

4.4. The association of aggressive incidents with alcohol consumption

Consistent with the finding of Spence et al. \((2009)\), the present study found that total alcohol consumption was significantly associated with aggressive incidents. The present study expanded upon Spence et al.‘s study by asking participants to estimate how much time they spent in licensed premises per week, and, for those who were involved in aggressive incidents, how much alcohol they had consumed on the day or evening of the incident. However, although aggressive females drank more heavily than non-aggressive females and spent more time in licensed premises, time spent in licensed premises was not a significant predictor of aggressive incidents in our multiple regression model.
4.5. Motivations for aggressive incidents

The current study expands upon that of Spence et al. (2009) as information was obtained about the characteristics of aggressive incidents for 100% of the aggressive participants (n = 37) compared to only 41% of the aggressive participants (n = 12) in Spence et al.’s study. Our findings regarding participants’ motivations for aggressive incidents were consistent with those of Spence et al.; of the four motivations identified by Graham and Wells (2003) for why men become involved in aggressive incidents, addressing a grievance and face saving were the most commonly reported motivations. Face saving was not a commonly reported motivation among the females in either Spence et al.’s study or the current study, suggesting that although men feel the need to protect their honour or masculinity, women are less likely to behave aggressively to save face. Future research involving more representative samples should therefore compare male and female motivations for aggressive incidents in licensed premises. These findings along with the fact that nearly all participants claimed that the other party initiated the incident suggest that when women become involved in aggressive incidents, they are motivated by emotions arising from a perceived grievance.

4.6. Limitations of the study

The findings of this study must be interpreted in light of its limitations. Firstly, the sample of female university students might not be representative of females in general; University students are often living away from home for the first time with new friends in a new place and this excitement combined with a lack of responsibilities and extensive drinks/student night club promotions leads to the well-known university drinking culture. In contrast, young women of the same age who do not attend university may not spend as much time in licensed premises due to reasons such as work, children and less exposure to the promotion of drinks that university students experience. However, it is also possible that some female populations may be at even greater risk of alcohol abuse and/or violence such as those who drop out of school or do not attend university. Guo, Hawkins, Hill, and Abbott (2001), for example, found that a strong degree of bonding to school at ages 10, 14 and 16 predicted a lower risk of alcohol abuse and dependence at age 21. Similarly, Miller, Naimi, Brewer, and Everett-Jones (2007) found that high school students who reported binge drinking were more likely than both non-drinkers and drinkers who did not binge drink to report poor school performance and involvement in other health risk behaviours (e.g. being a victim of dating violence, using illicit drugs or travelling in a car with a driver who had been drinking). To further understand the ladette culture, future research could replicate the current study with a sample of non-students.

Another limitation of the study is its reliance on self-reported data. Participants may have felt uncomfortable reporting information about their drinking habits and aggressive behaviour which could have led to the under or over-reporting of alcohol consumption or aggressive incidents. In particular, because the Self-Reported Aggressive Incidents Questionnaire does not specifically define or provide examples of verbally or physically aggressive behaviour participants may not have perceived certain behaviours as aggressive. Some questionnaires which measure violence use very specific, descriptive items such as ‘Have you called someone a name during a fight?’ or ‘Have you ever hit someone with your fist during a fight?’, which may increase the likelihood that participants will interpret their behaviour as aggressive.

A further limitation of the study is that its retrospective nature may have resulted in inaccurate reports of alcohol consumption and/or aggression, particularly with regard to aggressive incidents which occurred when the participant was intoxicated.

4.7. Conclusions

The findings of this study contribute to the current knowledge on the relationships between alcohol use among females, motivations for aggression and aggressive incidents in licensed premises. Average alcohol consumption per week was significantly associated with aggressive incidents in licensed premises and participants were also highly likely to have been intoxicated at the time of the aggressive incident, indicating that an effective way to reduce the occurrence these incidents would be to limit alcohol consumption. Because studies have suggested that female binge drinking is planned and under the control of intentional and habitual processes (Norman, 2011; Todd & Mullan, 2011), bars and clubs should be aware of, and seek to reduce, the contextual cues that promote this behaviour. For example, they could reduce the number of very cheap drinks promotions such as happy hours and instead promote healthy alternatives such as spacers and non-alcoholic cocktails. In addition, as Norman (2011) suggests, interventions to reduce binge drinking should also focus on the motivational determinants (e.g., perceived positive and negative consequences) of binge drinking.

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Conflict of Interest
There is no conflict of interest for any of the authors.

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