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**Motivation to drink alcohol in first year university students: Having a good time or simply coping?**

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## Abstract

Research suggests that excessive alcohol consumption is a major health concern in undergraduates with typical drinking patterns established in the first year (Berwick, et al., 2008). While the stereotype is that students drink to have fun, some American research has suggested that excessive alcohol use is associated with stress in students (DeHart et al., 2009). The self-medication hypothesis (Khantzian, 2003) suggests that individuals with high levels of stress and anxiety will drink alcohol more frequently as a coping mechanism and this was examined here. The motivation to drink alcohol was assessed in British first year undergraduates (N=137) along with levels of stress, state and trait anxiety, and frequency of alcohol use. The self-medication theory was supported for women but not for men. Women also had higher perceived stress scores than men. The more students were motivated to drink to have a good time, the more frequently they drank.

**Keywords:** alcohol use; motivation to drink alcohol; undergraduates; sex differences; stress; self-medication hypothesis; anxiety

## **Motivation to Drink Alcohol in First Year University Students: Having a Good Time or Simply Coping?**

In many countries, alcohol consumption amongst students is consistently shown to be higher than that of non-students in the same age range (Dawson, Grant, Stinson, & Chou 2004; Kypri, Cronin, & Wright, 2005; Kypri, Langley, McGee, Saunders, & Williams, 2002). Reviewing UK studies of alcohol use in undergraduates, Gill, (2002) reported that 43% of females and 52% of males self-report drinking above the recommended weekly limits of alcohol. This compares with a general population figure of 37% for males and 33% for females of a similar age (Richards, Fox, Roberts, Fletcher, & Goddard, 2004). While consumption is highest in first year students, excessive alcohol consumption is a major health concern across the undergraduate population, with drinking patterns being established in the first year (Berwick, Mulhern, Barkham, Trusler, Hill, & Stiles, 2008). The common stereotype is that undergraduate students drink alcohol to excess as part of having a good time at university. It is part of an image of being young and carefree. An American diary study challenges this, associating excessive alcohol use with greater stress levels and low self-esteem in students (DeHart, Tennen, Armeli, Tood, & Mohr, 2009). This research aims to increase our understanding of why British students drink to excess. This can then be used to inform health education and treatment interventions.

Beginning university is an important transition to adulthood with the related stresses of living independently and coping with the new experiences of university life. Some students find it difficult to adjust (Wei, Russell, & Zakalik, 2005). Many students find their first year stressful, experiencing homesickness, loneliness, isolation, and depression (Wei et al., 2005). According to the self-medication hypothesis (Khantzian, 2003), some students may cope by excessively using alcohol. This suggests that substance use operates as a compensatory means to deal with stressful events and self-manage negative psychological

states. Khantzian (1997, 1999, 2003) argued that substance users experience dysphoric emotions as being insufferable and overwhelming and that they cannot cope with these emotional states on their own. Instead, substance abusers utilize substances to cope, and to achieve emotional equilibrium (Khantzian, 1997). Alcohol, is the most extensively abused substance in the United States and Europe (Suh, Ruffins, Edward-Robins, Albanese, & Khantzian, 2008). It is used extensively in the student population and frequent use has been associated with depression, stress, and anxiety (Cooper, Frone, Russell, & Mudar, 1995; Cooper, Krull, Bede-Agocha, Flanagan, Orcutt, Grabe, & Dermen, 2008; Dehart et al., 2009; Goldsmith, Tran, Smith, & Howe, 2009). Lyvers, Hasking, Hani, Rhodes, & Trew, (2010) suggest that American students may be using alcohol as a coping mechanism to deal with stress, although the levels and frequency of alcohol consumption reported are lower than in the UK. This study measures first year UK undergraduate students' habitual use of alcohol, focussing on their motivation to drink and examines how it relates to their levels of perceived stress and related anxiety.

Research in the general population in the United States on self-reported motivation for drinking alcohol suggests three main reasons (Cooper, 1994; Cooper, Russell, Skinner, & Windle, 1992; Farber, Khavari, & Douglas, 1980). The first of these is social reasons, to gain approval and acceptance by peers, and to feel that they belong within the peer group. Drinking then provides positive reinforcement to the individual, providing a greater sense of identification and belonging. Secondly, they may drink to help them cope by temporarily escaping from negative affective states like stress and anxiety. Here, drinking provides negative reinforcement as the underlying problems and associated negative affect remain and are likely to be exacerbated by continued alcohol use. The third reason is drinking to maintain and enhance positive affective states, to feel even happier, carefree or excited. This is labelled the enhancement motive (Cooper, 1994; Cooper et al., 1992). The applicability of

these motives to first year undergraduate alcohol consumption in a UK university and their relationships to self-assessed stress and anxiety are explored.

The assessment of alcohol consumption is problematic and under-reporting by up to 50%, of alcohol intake by individuals is not uncommon (Feunekes, Veer, Staveren, & Kok, 1999). The most widely employed method to assess alcohol intake is the quantity frequency (QF) measure of average intake (Rehm, Greenfield, Walsh, Xie, Robson, & Single, 1999). This measure typically starts with a question about the frequency of drinking episodes and then may ask about the average number of drinks consumed per episode (Grzywacz & Almeida, 2008; Rehm et al, 1999). For most people the amount consumed varies considerably between drinking episodes, making an average quantity difficult to report and assessment of the quantity consumed is unreliable when individuals are drinking to excess as their recall is poor as shown in a student samples (Rehm et al, 1999). This demonstrates how difficult it is to get an accurate picture of drinking behaviour. Recent research suggests that assessing frequency of alcohol use is as reliable and valid when used with measures of coping as individuals who are motivated to use alcohol to help them cope with stress or deal with social anxieties will drink more frequently than those drinking for enhancement reasons (Grzywacz & Almeida, 2008). The evidence suggested that in these circumstances there was a tendency to under report quantity from poor recall when drinking to excess whereas frequency tended to be more accurate as it was easier to recall.

To summarise, the motivational basis for alcohol use demonstrated to be applicable to general population samples will be examined in a first year undergraduate sample to see whether students are motivated to drink to have a good time or whether frequency of alcohol use is linked to coping with stress and anxiety. The hypothesis is that high levels of state anxiety, trait anxiety, perceived stress, and frequency of alcohol use will be positively

associated with the motivation to drink as a coping mechanism in line with the self-medication hypothesis.

## **Method**

### **Participants**

One hundred and thirty-seven (53 male and 84 female) first year undergraduates from a medium size post 92 university in the north of England participated in the research. The mean age of the sample was 19.04 years ( $SD = 3.31$ ).

### **Measures**

**Drinking Motives Questionnaire (DMQ), (Cooper et al., 1992).** This is a 15-item measure assessing the reasons why people drink alcohol. There are three subscales reflecting social motives for alcohol use, coping motives for alcohol use and enhancement motives for alcohol use. Responses are scored on a four point Likert scale for example, "I drink to relax": 1 (never/almost never), 2 (sometimes), 3 (often), and 4 (almost always/always). The DMQ has demonstrated adequate reliability with Cronbach's  $\alpha$  reported between .85 and .81 (Stewart, Morris, Mellings, & Komar, 2006; Cooper et al., 1992) and .80 was found in this study.

**Frequency of Alcohol Use.** Participants were asked to indicate how frequently they had drunk alcohol in the last month. Responses are rated on a 5-point frequency scale ranging from "Never" to "Daily". This was developed from guidelines provided by Dawson and Room, (2000).

**Perceived Stress Scale (PSS), (Cohen, Kamarck, & Mermelstein, 1983).** This is a 14-item measure of stress. Responses are rated on a 5-point Likert scale with scores ranging from "Never = 1" to "Very often = 5", example item "In the last month, how often have you been upset because of something that happened unexpectedly". High scores describe higher levels of perceived stress. The PSS has been extensively applied and has demonstrated good

reliability and validity, Cronbach's  $\alpha$  have been reported from .78 and .88 (Cercle, Gadea, Hartmann, & Lourel, 2008; Cohen et al., 1983; Extremera, Duran, & Rey, 2009; Hewitt, Flett, & Mosher, 1992; Mimura & Griffiths, 2004; Spada, Nikcevic, Moneta & Wells, 2008) with this study reporting .72.

**State-Trait Anxiety Inventory (STAI). (Spielberger, Gorsuch, & Lushene 1985).**

This is a 40-item measure that assesses separate dimensions of state and trait anxiety, using a four-point Likert scale: 1 (not at all), 2 (somewhat), 3 (moderately so), and 4 (very much so). The items from 1-20 assess state anxiety, by asking participants how they currently feel, while items 21-40 assess trait anxiety, by asking participants how they feel generally. High scores indicate higher levels of anxiety. The STAI has been extensively applied and has shown to demonstrate good reliability and validity, Cronbach's  $\alpha$  have been reported between .75 and .90 (Gallagher & Cartwright-Hatton, 2008), with .70 in this study.

**Procedure**

Data was collected towards the end of the second semester of the student's first year at university to allow drinking patterns to become established. The study was introduced and volunteers were requested during two first year student lectures. Students were then given time to complete the questionnaire. All of the students present volunteered. Students did not receive course credits for their participation in the research.

**Results**

All the students present in the two lectures completed the questionnaires but students not attending could not be identified as no registers were taken. Two men (3.8%) and 10 women (11.9%) never drank alcohol. This was 8.76% of the sample and compares with approximately 9% of the general population in the UK who do not drink (Hastings & Angus, 2009). The frequency of alcohol consumption for the remaining sample is summarised in Table 1. The mean stress score for the non-drinkers ( $M = 41.84$ ,  $SD = 6.06$ ) was significantly



lower than that of the drinkers ( $M = 44.62$ ,  $SD = 4.56$ ),  $t(135) = 1.96$ ,  $p < .05$ ,  $d = .42$ .

There was no significant difference in the means for state anxiety, but trait anxiety in the non-drinkers ( $M = 42.83$ ,  $SD = 7.28$ ) was significantly higher than in the drinkers ( $M = 39.24$ ,  $SD = 4.09$ ),  $t(135) = 2.77$ ,  $p < .01$ ,  $d = .62$ . As motivation to drink alcohol was being studied, the non-drinkers were excluded from further analyses. The scores on frequency of alcohol consumption drank were divided into three groups reflecting low frequency (1-2 days per week), medium frequency (3-4 days per week), and a high frequency group (5-6 days per week) as shown in Table 1.

- Table 1 about here -

The means, standard deviations, and ranges for all the scales and subscales for the drinking sample are displayed in Table 2. A one-way MANOVA was computed to test for any differences in scores between men and women. The women's perceived stress score ( $M = 46.04$ ,  $SD = 4.99$ ) was significantly higher than the men's ( $M = 42.57$ ,  $SD = 2.84$ ), ( $F(1, 123) = 20.19$ ,  $p < .001$ ), ( $d = .85$ ). Women's trait anxiety ( $M = 40.82$ ,  $SD = 4.33$ ) was significantly higher than that of the men ( $M = 39.23$ ,  $SD = 4.09$ ), ( $F(1, 123) = 4.16$ ,  $p < .05$ ), ( $d = .37$ ). There were no significant differences in mean scores between men and women on state anxiety or any of the drinking motivation subscales.

- Table 2 about here -

### **Motivation to Drink Alcohol**

To examine the motivation to drink alcohol a MANOVA was conducted to compare the three alcohol consumption frequency groups on DMQ coping, DMQ social, and DMQ enhancement scores. There was a statistically significant main effect of alcohol consumption frequency, Wilks'  $\lambda = .65$ ,  $F(12, 124) = 4.78$ ,  $p < .001$ ,  $\eta^2 = .20$ . Between the alcohol consumption frequency groups there were significant differences on DMQ social ( $F(2, 124) = 10.20$ ,  $p < .001$ ),  $\eta^2 = .14$  and DMQ enhancement ( $F(2, 124) = 21.77$ ,  $p < .001$ ),  $\eta^2 = .26$ .

The differences in DMQ coping across the three group were not statistically significant, so being motivated to drink as a coping mechanism was not significantly related to frequency of alcohol consumption. The mean scores are graphed in figure 1.

- insert Figure 1 about here -

To test for the significance of the differences in mean scores on DMQ social and DMQ enhancement, post hoc tests using a Bonferroni correction between the three frequency levels were computed. These indicated that the mean difference on DMQ social scores between the low consumption group ( $M = 10.33, SD = 2.87$ ) and the moderate consumption group ( $M = 12.43, SD = 3.02$ ) was significant ( $SE = .68, p < .01, 95\% CI = 3.76 - .44$ ). The difference between the low frequency group and the high frequency group ( $M = 13.50, SD = 2.98$ ) was also significant ( $SE = .70, p < .001, 95\% CI = 1.45 - 4.88$ ). There was no significant difference between moderate and high consumers on social motivation to drink. The mean difference in DMQ enhancement between low frequency group ( $M = 8.87, SD = 3.03$ ) and the moderate frequency group ( $M = 10.63, SD = 3.39$ ) was significant ( $SE = .72, p < .05, 95\% CI = 3.49 - .02$ ) and the difference between the low frequency group and the high frequency group ( $M = 13.55, SD = 2.82$ ) was also significant ( $SE = .74, p < .001, 95\% CI = 6.47 - 2.89$ ) as was the mean difference between the moderate and high frequency groups ( $SE = .64, p < .001, 95\% CI = 1.36 - 4.47$ ).

### **Self-medication Hypothesis**

As women scored significantly higher than men on stress and trait anxiety the test of alcohol use as self-medication was undertaken separately for men and women. The self-medication hypothesis suggests that higher levels of state anxiety, trait anxiety, perceived stress, and frequency of alcohol use will be associated with alcohol use as a coping mechanism (DMQ coping). Pearson product moment correlations were computed to examine

these relationships using the original ungrouped data set. The results for men and women separately are shown in Table 3.

- Table 3 about here -

For women, there are positive associations between stress, trait anxiety, alcohol use, and being motivated to drink to cope (DMQ coping) as predicted in the self-medication hypothesis but no association with state anxiety. To examine whether stress, trait anxiety, and frequency of drinking predicted drinking to cope, a standard multiple regression with DMQ coping as the criterion variable and stress, trait anxiety, and alcohol frequency as predictors was computed. The model was significant  $F(3, 70) = 5.28, p = .002$  accounting for 14.9 % of the variance in coping motivation scores. Only frequency of alcohol consumption was a unique predictor of DMQ coping in women. These results provide support for the self-medication hypothesis applying to women.

For men, the predicted positive correlations in the self-medication hypothesis between state anxiety, trait anxiety, perceived stress, frequency of alcohol, and DMQ coping were not found. DMQ coping correlated positively only with state and trait anxiety. Multiple regression was used to test whether state and trait anxiety predicted drinking to cope. With DMQ coping as the criterion variable and state and trait anxiety as predictors, the model was significant  $F(2, 48) = 7.45, p = .002$  accounting for 23.7 % of the variance in coping motivation scores. State anxiety ( $\beta = .31, p = .02$ ) and trait anxiety ( $\beta = .30, p = .03$ ) were almost equal predictors of DMQ coping for men.

### **Discussion**

The proportion of non-drinkers in the sample is similar to that in the general population (Hastings & Angus, 2009). While the non-drinkers had lower stress scores and higher trait anxiety scores than the drinkers, the numbers in the non-drinking are too small to draw any firm conclusions. However there is little research on non-drinkers, so this is worth

following up in future. Within the drinking sample, although the female students in the sample report considerably more stress than the male students, there are no differences between men and women in the motivation to drink measures or in the frequency of drinking. This lack of a sex difference is in line with recent research which suggests that male and female drinking patterns have increasingly become more similar over the last ten or so years (Smith & Foxcroft, 2009) but shows a change from Gill (2002), where males drank more frequently. The lack of an association between stress and alcohol use differs from the American study conducted by DeHart, et al., (2009), which found an association, although alcohol use is generally reported to be lower in American students than in British students (Lyvers et al., 2010). The finding that women have slightly higher levels of trait anxiety than men is in accord with prevalence rates found generally in population surveys (e.g. Seeman, 1999).

In terms of the motivation to drink, there are no significant differences between high, medium, and low frequency drinkers in terms of being motivated to drink by a need to cope. This was also found in previous American research on students (Cooper et al., 2008; Dehart et al., 2009; Goldsmith et al., 2009). It could be that students who were drinking to excess to cope are less likely to attend lectures by the end of their first year and this could be explored in future. There may be a relationship between coping and the amount of alcohol consumed. This could be examined in future if some more reliable way of assessing quantity as well as frequency can be implemented. The student population poses a challenge as there is a tendency to drink to excess on occasions so that recall becomes unreliable.

There are significant differences in terms of social motivation across the three groups of drinking frequency, with low frequency drinkers having significantly lower social motivation scores than the moderate and high frequency drinkers. It appears that the moderate and high frequency drinkers are almost equally motivated to drink by social

factors. Moderate drinkers are more motivated by enhancement than low frequency drinkers and high frequency drinkers are more motivated by enhancement than moderate and low frequency drinkers. The more the undergraduates were motivated to drink by social and enhancement factors the more frequently they drank. This is in line with previous studies on the general population (Cooper, 1994; Cooper et al., 1992; Farber et al., 1980). The social factor measures the need to fit in to make friends and achieve a sense of belonging and this is a task that first year students have to address in their transition to university (Wei et al., 2005). Enhancement motivation is about drinking to feel happier, excited, and carefree (Cooper, 1994; Cooper et al., 1992), and it appears the more students believe this to be true, the more frequently they drink. This suggests those students drinking more frequently are motivated in part by wishing to have a good time.

The self-medication hypothesis (Khantzian, 1997, 1999, 2003) was supported for women. Higher levels of perceived stress, trait anxiety, and frequency of alcohol use are significant predictors of the use of coping motivation by female students explaining a reasonable amount of the variance, with the frequency of alcohol use being a significant predictor in line with the theory. However for male students, the predicted positive associations between the variables are not found, so that the self-medication hypothesis does not hold for the men. Here state and trait anxiety accounted for a significant amount of the variance in coping scores and both were unique predictors of coping as a motivator to drink frequently. This is consistent with the previous Suh et al., 2008 study on coping as a motivator for frequency of alcohol use. While the self-medication hypothesis was not supported for men using frequency of alcohol consumption data, future research should include a quantity measure to fully test the hypothesis. The difference between men and women in terms of the relationship between anxiety and being motivated to drink to cope with negative emotions merits further examination as it could help make alcohol education

more relevant by allowing materials to be tailored to address the specific needs of males and females.

### **Conclusions**

Students drink more than non-students of the same age (Dawson et al., 2004; Kypri et al., 2002; Kypri et al., 2005) and alcohol consumption is a serious health issue especially as it has been shown that the patterns of consumption established in first year tend to be maintained (Berwick et al., 2008). This study suggests that the more students are motivated to drink to make friends and feel affiliated to a group (social) and see it as having a good time (enhancement), the more frequently they drink. All students were motivated to drink alcohol to cope with negative emotions but this did not affect the frequency of alcohol consumption in this group. It may be that there are differences in the amount of alcohol consumed that relate to coping and future research could address this. Alcohol consumption amongst undergraduates is a serious concern and perhaps more needs to be done to educate students about it and to address the stereotype of excessive drinking as a fun pastime.

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Table 1

*Frequency of Alcohol Consumption for Women and Men*

	Low (1-2days)	Medium ( 3-4 days)	High (5-6 days)	Total N
Women	22 (29.7%)	30 (40.5%)	22 (29.7%)	74
Men	8 (15.7%)	21 (41.2%)	22 (43.1%)	51
Total N	30 (24%)	51 (40.8%)	44 (35.2%)	125

Table 2

*Means, Standard Deviations, Ranges for all the Scales and Subscales*

Scales	<i>N</i>	<i>M</i>	<i>SD</i>	Range
DMQ Coping	125	9.27	3.13	5-18
DMQ Social	125	12.30	3.19	5-20
DMQ Enhancement	125	11.23	3.60	5-20
Perceived Stress Scale	125	44.62	4.56	35-56
State Anxiety	125	45.44	6.03	33-61
Trait Anxiety	125	39.24	4.09	31-55

Table 3

*Correlations between Perceived Stress, DMQ Coping, Social, and Enhancement, State and Trait Anxiety*

Psychological strengths	1	2	3	4	5	6	7
1. Perceived Stress Scale	--	.23	.21	.16	.10	.02	-.03
2. State anxiety	.38***	--	.26	.39**	-.03	.19	.01
3. Trait anxiety	.30**	.46***	--	.38**	-.14	.13	-.13
4. DMQ Coping	.26*	.13	.23*	--	.07	.42**	.08
5. DMQ Social	.11	.10	.23*	.45***	--	.64***	.37**
6. DMQ Enhancement.	.16	.18	.10	.59***	.63***	--	.52***
7. Alcohol frequency	-.05	.18	-.06	.28**	.41***	.50***	--

\*  $p < .05$ , \*\*  $p < .01$ , \*\*\*  $p < .01$

Note: Men ( $N = 51$ ) above the diagonal and women ( $N = 74$ ) below the diagonal.

### Figure Caption

*Figure 1.* Mean scores for the low, moderate, and high alcohol frequency groups on motivation to drink subscales of coping, social, and enhancement

