

ALCOHOL HANGOVER EFFECTS ON MEASURES OF AFFECT THE MORNING AFTER A NORMAL NIGHT'S DRINKING

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Abstract — **Aim:** To investigate the effects of students' usual levels of alcohol consumption on aspects of mood and anxiety the following morning. **Methods:** Students were recruited who consumed their usual quantity of any type of alcoholic beverage in their chosen company and then completed assessments of the effects the following day. The timing of drinking was restricted to the period between 22:00 and 02:00 h the night before testing as these are the most popular hours for consuming alcohol in the population under investigation. The testing included an assessment of mood and anxiety; testing was also performed after an evening of abstinence (no hangover condition), following a counterbalanced repeated measure design, with time of testing and order of testing as 'between participant' factors. Forty-eight student social drinkers (33 women, 15 men) aged between 18 and 43 years were tested, with a 1 week interval between test sessions. **Results:** Males reported consuming on average 14.7 units and females 10.5 units the night before testing. On the morning after alcohol consumption, ratings of alertness and tranquility were lower than the ratings the morning following an evening of abstinence at both 11:00 and 13:00 h and the post intoxication physical symptoms, emotional symptoms and symptoms of fatigue persisted throughout the morning. **Conclusion:** Heavy alcohol consumption lowers mood, disrupts sleep, increases anxiety and produces physical symptoms, emotional symptoms and symptoms of fatigue throughout the next morning.

THE POST-INTOXICATION EFFECTS OF ALCOHOL ON MOOD AND ANXIETY

Alcohol is a mood-altering drug and the immediate effects are to depress inhibitions and promote feelings of elation. The results from a number of studies suggest that the alcohol-induced changes in mood may carry over to the sober state (Weingold *et al.*, 1968; Gross and Morosko, 1969; Gibson and Becker, 1973a, b). The majority of research within the field of alcohol has focused on the effects of alcohol consumption on addicted individuals. In comparison little research has been conducted on the next day effects of alcohol consumption on the non alcohol dependent drinkers, who constitute the majority of alcohol consumers. A double blind, crossover, placebo-controlled study of non alcohol dependent drinkers revealed increased levels of discomfort the morning after alcohol consumption compared to the morning after placebo consumption. This discomfort was observed for both perceptual states (mood etc.) and symptoms scales, (Streufert *et al.*, 1995).

Investigations of the effects of alcohol on the social drinker have employed a pharmacological model of drug action (Maylor and Rabbitt 1987; Chait and Perry 1994; Verster *et al.* 2003). This approach demands that participants consume a standard quantity of alcohol, which may be different from their usual quantity and type of alcoholic beverage. This experimental procedure has generally been laboratory based and participants consume alcohol in an unnatural environment either alone or with other volunteers whom they have never met before. This is in contrast to the usual situation in which social drinkers consume their beverage of choice in company of choice. Collins and Chiles (1980) partly addressed the issue of drinking environment and tried to create a party atmosphere by allowing participants to play ping pong, cards, and table hockey. Myrsten *et al.* (1980) also reported an attempt to create a relaxed social atmosphere by letting the research

team join the participants when they were eating the meal prepared to the experimentally imposed standards. McKay and Schare (1999) conducted a literature review and found 14 (21.9%) studies which he characterised as employing a 'Natural Environment'. This natural environment was defined as situations where subjects were provided with an easy chair, or environments that approximated a home setting. The natural drinking environment is imbued with social meaning, which has an impact on the mood state of the social drinker. When one considers that the mood altering effects of alcohol may last longer than the period of measurable intoxication it is important to investigate the naturally occurring next day effects of alcohol consumption. This social aspect of consuming an alcoholic beverage of choice, in chosen company has never been investigated. An intriguing study by Lindman (1982), investigated four social drinkers in two drinking conditions; a real social situation and an artificial solitary drinking situation. It was found that participants drank twice as much when in the natural environment, and the solitary drinking failed to induce the euphoric effects reported at the party.

It is acknowledged that the consumption of alcohol increases when a person is stressed (Mehrabian and Ross 1979; Abbey *et al.*, 1993). Harburg *et al.* (1981) revealed that individuals experiencing more life stress in the past year reported a greater number of hangover symptoms. There is also the possibility that the consumption of alcohol may modify some of the behavioural consequences of stress. A wealth of information exists concerning the effects of environmental stressors, e.g. white noise, on performance (Broadbent 1971; Smith and Jones, 1992). However despite the growing concern about the effects of naturally occurring life stress, the influence of these naturally occurring life stressors on performance remains a neglected area of research. A possible reason for this is that experimentally manipulating life stressors is unethical. However exemplary methods of assessing naturally occurring life stress are now available.

Alcohol consumption affects neurotransmitters (e.g. serotonin and glutamate) that control the sleep/wake cycle. During

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the rising limb of the blood alcohol curve alcohol has a stimulating effect. In contrast a sedative effect prevails during the descending limb. Alcohol affects both the time taken to fall asleep and changes the pattern of sleep throughout the night (Vitiello, 1997; Finnigan *et al.*, 1998). Alcohol is a sedative and can induce rapid onset of sleep, while the resultant disturbance of night-time sleep quality may possibly result in post-consumptive daytime disturbances of mood. The specific effects of alcohol on sleep patterns are dependent upon the amount consumed, time between consumption and bedtime and actual blood alcohol concentration (BAC) achieved. However there are some general effects of acute alcohol. It reduces sleep latency; increases time spent in short wave sleep in the first half of the night; significantly reduces the time spent in REM sleep in the first half of the night; and increases the time spent in REM sleep in the second half of the night. The complex interactions between alcohol ingestion and sleep have direct implications for alcohol's effects on cognitive performance (Vitiello, 1997). When one considers that poor sleep efficiency is associated with depression (Robert and Shema, 2000; Allgower *et al.*, 2001), it is important to consider sleep in investigations of alcohol effects on measures of affect.

METHOD

Participants

The participants were 48 students of the University of Ulster (15 men, 33 women) whose mean age was 23.38 (SD 5.26, range 18–43) years. All participants were recruited through advertizing in the halls of residence, and instructed that they would be required to take part in two experimental sessions ~1 week apart. All students reported no problems associated with alcohol consumption. The pre-testing requirements for the hangover testing session were as follows: participants were requested to consume their usual quantity of alcohol only between 22:00 and 02:00 h. They were requested to abstain from alcohol for the 24 h immediately before the no hangover testing session. Participants were instructed to have breakfast at 08:00 h before each test session and they were asked to refrain from caffeine drinks after breakfast.

Design

The study followed a counterbalanced repeated measures design with time of day (09:00, 11:00 and 13:00 h) and order of testing (hangover/no hangover: no hangover/hangover) as between-participant factors. Each participant carried out tasks in both the hangover and no hangover state and the two sessions were ~1 week apart. The counterbalanced repeated measure design used a naturalistic drinking environment to facilitate the investigation of participants' usual volume of consumption of preferred beverage in chosen company. Participants were randomly allocated to an order and time of testing. The randomization procedure ran in eight cycles with six participants randomly allocated to a time and order within each cycle.

Procedure

Participants confirmed compliance with the pre-testing requirements and read and signed the informed consent

form. Following this, participants' blood alcohol levels were recorded using a Lion Alcolmeter.

Measures

The participants completed questionnaires on demographic information, drinking practices, hangover signs and symptoms (Myrsten *et al.*, 1980), hangover experiences (Newlin and Pretorius, 1990), sleep quality and quantity. Questionnaires assessing mood (Herbert *et al.*, 1976), anxiety (Spielberger *et al.*, 1970), perceived stress (Cohen *et al.*, 1983) and cognitive interference (Sarson, 1978) were also completed. Following this the task battery of objective tasks was administered in a standard order (free recall; regular reaction time; selective attention; divided attention; Stroop task; irregular reaction time; spatial attention; five-choice reaction time; delayed recognition). The present paper will report the data on perceived stress in the last month, mood the morning after alcohol consumption and the hangover experiences and symptoms.

Materials

The demographic questionnaire obtained information on gender, weight, height, smoking, drugs, and age at first drink. The drinking practices questionnaire asked about frequency of drinking using a typical month as reference; the range of responses were: <1/week, 1–2/week, 3–5/week, 6+ every day. The usual quantity of alcohol consumed was assessed with the question—'How many drinks are consumed on any one sitting?' The responses ranged from <3 drinks to >8 drinks. The largest quantity of alcohol consumed at one sitting was also assessed. The range of responses was <3–13 or more drinks. The frequency of consuming the largest quantity of alcohol at any one sitting was assessed using the last year as a reference: <1/year, 1–2/year, 3–6/year, 1–2/month, >1/month. How often do you consume alcohol to reach a state of intoxication? <1/year, 1–2/year, 3–6/year, 1–2/month, >1/month. The questionnaire enquiring about the consumption on the night before testing comprised pictures of pint glasses, wine glasses, beer bottles, and spirit measures. Participants were instructed to circle the number of each type of drink they had consumed the previous evening. This method was used to try and increase memory for the drinks consumed the previous evening.

Both quantity and quality of sleep were assessed. Participants reported the time they went to bed, the time taken to fall asleep, the time of waking, and the actual number of hours slept. A visual analogue format was used to assess how 'good', how 'satisfying', how 'restful', how 'refreshing', and how 'deep' the participants found their sleep the night before. The measurement of subjective mood was assessed using 18 bi-polar visual analogue scales. (Herbert *et al.*, 1976). Perceived stress in the last month was assessed using the 14 item PPS (Cohen *et al.*, 1983). Anxiety was assessed using the 'State Trait Anxiety Inventory' (Spielberger *et al.*, 1970). The 13 items of the hangover experiences questionnaire (Newlin and Pretorius, 1990) assessed the hangover experiences within the past year. The 15 items of the hangover symptoms questionnaire comprised adjectives referring to well known after-effects of hangover (Myrsten *et al.*, 1980). One score indicates feelings of 'physical discomfort'.

Table 1. Subjects' ages, alcohol history and 'evening-before-test consumption' (means and SD)

	Male (<i>n</i> = 15)	Female (<i>n</i> = 33)	Subjects tested at 9 AM	Subjects tested at 11 AM	Subjects tested at 1 PM
Age	24.5 (6.34)	22.97 (4.64)	25.6 (6.6)	22.25 (3.9)	22.5 (4.2)
Age when had first drink	16.55 (1.59)	15.26 (1.41)	16.2 (1.9)	15.5 (5.07)	15.12 (1.1)
Usual units per occasion	10.23 (3.76)	10.55 (7.14)	9.0 (3.16)	11.1 (3.2)	9.9 (12.7)
Usual units per week	23.9 (11.82)	24.03 (10.5)	21.0 (10.8)	27.9 (12.2)	23.8 (8.27)
Units evening before test	14.70 (8.43)	10.41 (7.07)	11.2 (5.5)	13.3 (9.7)	11.0 (7.56)

The second score, 'emotional disturbances', the third score 'feelings of fatigue and mental inertia'.

RESULTS

Table 1 shows participants' mean age, drinking history, and their consumption the evening before the 'hangover' testing. Two separate multivariate analyses of variance were performed on demographic and alcohol consumption variables, with both gender and time of testing (09:00, 11:00, 13:00) as between participant factors. No statistically significant differences were found. Thus there is no difference between participants randomly allocated to each time of testing.

Participants considered themselves to be social drinkers, and all BAC's were zero the morning after alcohol consumption except for two participants who had low readings of 5 mg/100 ml. Males reported consuming on average 10.23 (SD 3.76) units, and females reported consuming 10.55 (SD 7.14) units of alcohol per drinking occasion. On average, the night before testing, participants consumed 11.84 units (SD 7.7 (range 3–43.5 units); males reported consumption of 14.7 (SD 8.43) units and females reported consumption of 10.41 (SD 7.7) units (1 unit was defined as one glass of wine, one measure of spirits or a half-pint of beer; equivalent to ~9 g ethanol).

The present investigation employed the multiple comparison technique; however this may increase the likelihood of type 1 errors. Bonferonni correction was applied to correct for multiple comparisons. The procedure involves testing each of the comparisons of interest at an alpha level that divides the total of 5 percent among the contrasts. Each comparison, then, would incur a risk of error equal to 0.05/number of comparisons. The results did not change after Bonferonni correction.

Separate analyses were performed on the measures of quantity of sleep and measures of sleep quality. Planned comparisons using *t*-tests compared the reported quantity of sleep during the night when alcohol was consumed with the night that no alcohol was consumed. As was expected alcohol significantly [$t(47) = 3.93$, $P < 0.01$] reduced the number of minutes to fall asleep suggesting a sedative effect of consuming alcohol. The time of going to bed was significantly [$t(47) = -7.81$, $P < 0.01$] later for the hangover compared to the no hangover condition. The difference in the mean reported hours of sleep between the hangover and the no hangover test session reached significance [$t(47) = 4.824$, $P < 0.01$] with significantly less hours of sleep reported in the hangover condition compared to the no hangover condition.

Data from the questions pertaining to sleep quality were analysed using paired sample *t*-tests. It was revealed that participants reported their sleep as being less satisfying

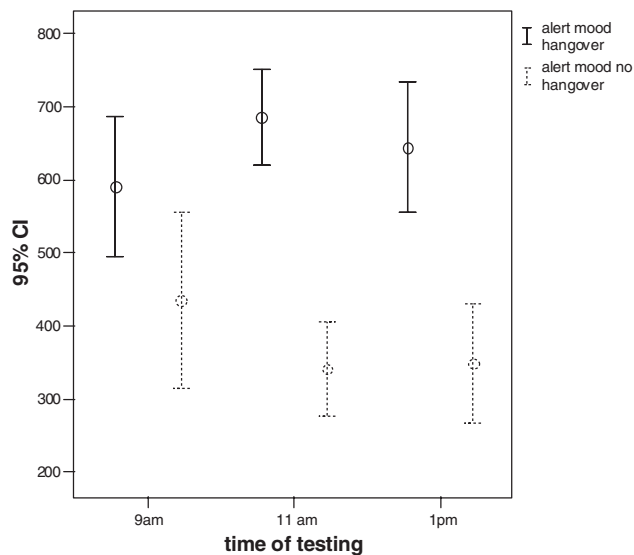


Fig. 1. Ratings of alertness in the hangover and no hangover states.

[$t(46) = -2.44$, $P < 0.05$] less restful [$t(46) = -3.91$, $P < 0.01$] and less refreshing [$t(46) = -2.99$, $P < 0.01$] the morning after alcohol consumption. Self reports of how good [$t(46) = -0.97$, $P > 0.05$] and how deep [$t(46) = 1.18$, $P > 0.05$] participants found their sleep were not significantly different between the two testing sessions.

Correlations were calculated between the three sleep quantity measures and measured aspects of mood. Alert mood in the hangover condition was weakly correlated with time of bed in the hangover condition ($r = 0.036$; $df = 48$; $P < 0.05$) and minutes to fall asleep in the hangover condition ($r = -0.346$; $df = 48$; $P < 0.016$). The reported tranquillity was not related to any of the objective sleep measures recorded for the hangover condition. In the no hangover condition hours of sleep was weakly correlated with alert mood ($r = -0.384$; $df = 48$; $P < 0.007$) and tranquil mood ($r = -0.349$; $df = 48$; $P = 0.015$). 37.5% of all possible relationships between the sleep quality and mood reached significance; however the variance explained was very small (< 0.4). Because the variance explained was low sleep will not be considered further.

Paired sample *t*-tests were employed to investigate the effect of time of testing on the two measured aspects of mood (alertness and tranquillity). It was observed that participants were significantly less alert the morning after alcohol consumption compared to the morning after no alcohol consumption at 11:00 h [$t(15) = 7.33$, $P < 0.01$] and 13:00 h [$t(15) = 5.89$, $P < 0.01$] (see Fig. 1.). A similar pattern was observed in the ratings of tranquillity. Participants were significantly less tranquil the morning after alcohol compared to

the morning after no alcohol but only at 11:00 h [$t(15) = 3.68$, $P < 0.01$] and 13:00 [$t(15) = 4.23$, $P < 0.01$] (see Fig. 2).

Correlations were calculated between all sleep measures and state anxiety recorded on both testing days. State anxiety in the hangover condition was negatively related to the report of how light the participants found their sleep in the no hangover condition ($r = -0.464$; $df = 46$, $P < 0.001$) and was the only relationship which reached significance. Consequently sleep was not considered further. The three factor ANOVA [2 (order: hangover/no hangover, no hangover/hangover) X 2 (condition: hangover, no hangover) X 3 (time: 09:00, 11:00, 13:00)] performed on the measures of state anxiety returned a main effect of state [$F(1,39) = 20.154$, $P < 0.001$] in that higher state anxiety was reported in the hangover condition compared to the no hangover condition [mean_{hangover} = 40.24 (10.27), mean_{no hangover} 36.22 (8.91)]. The factor of order of testing and time of testing did not reach significance ($P > 0.05$). However, a significant first order interaction of state X order was revealed [$F(2,39) = 3.778$, $P < 0.05$] (see Fig. 3). The difference between state anxiety reported during hangover and no hangover was significant for participants tested in order no hangover/hangover [$t(22) = 4.005$,

$P < 0.005$] but not for participants tested in order hangover/no hangover ($P > 0.05$).

Table 2 presents the results of a correlational analysis between anxiety, mood and stress. As would be predicted the measure of trait anxiety was highly correlated with state anxiety during hangover (0.671**) and no hangover (0.712**). The measure of perceived stress in the last month was highly correlated with trait anxiety (0.543**), state anxiety during hangover (0.681**) and no hangover (0.618**). In relation to mood the measure of perceived stress was weakly related to the two measured aspects of mood in the no hangover state (alert 0.374*, tranquil 0.304*) but not in the hangover state (alert 0.263, tranquil 0.227).

Hangover signs and symptoms

Three types of symptoms were assessed in the 'hangover symptoms questionnaire', physical symptoms, symptoms of fatigue, and emotional symptoms. Paired samples t -tests were employed to investigate the effect of state on each of the three symptoms. As expected greater reported symptoms were observed during the hangover session compared to the no hangover session (see Table 3).

Correlations were calculated between sleep measures and hangover symptoms. Time of going to bed in the hangover condition was weakly correlated with physical discomfort in the hangover condition (0.402**) and fatigue and mental inertia in the hangover condition (0.457**). The reported minutes to fall asleep were also weakly related to physical discomfort (-0.314^*) and fatigue and mental inertia (-0.295^*). The same weak pattern emerged on the morning after no alcohol consumption; time of bed was related to physical discomfort (0.423**) and fatigue and mental inertia (0.443**), and hours

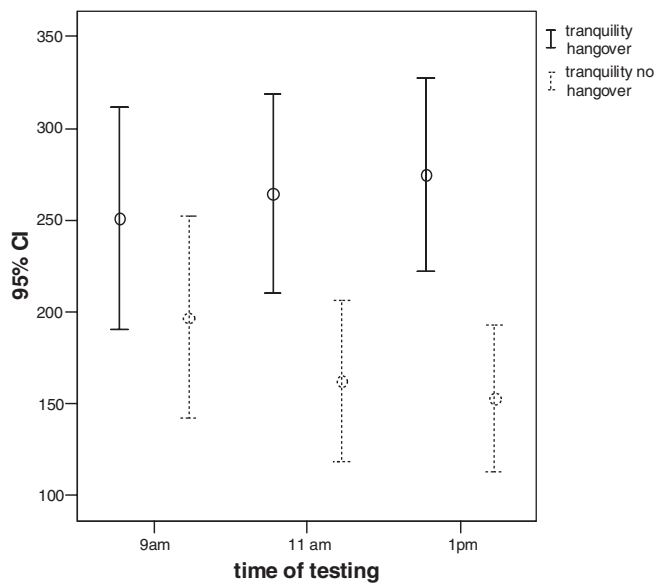


Fig. 2. Ratings of tranquility in the hangover and no hangover states.

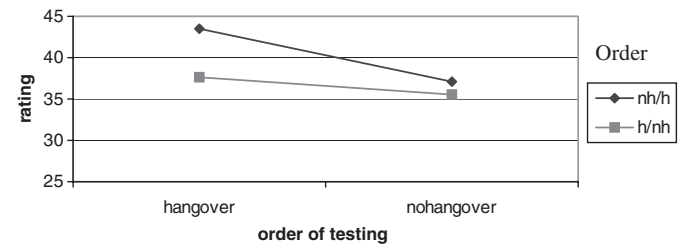


Fig. 3. Interaction of order of testing and hangover/no hangover condition on ratings of states anxiety.

Table 2. The relationship between anxiety, perceived stress and measured mood

	Trait	Perceived stress	State anxiety (hangover)	State anxiety (no hangover)	Alert mood (hangover)	Alert mood (no hangover)	Tranquil mood (hangover)	Tranquil mood (no hangover)
Trait	1.00	0.543**	0.671**	0.712**	0.281	0.322*	0.560**	0.366*
Perceived stress		1.00	0.681**	0.681**	0.263	0.374*	0.227	0.304*
State anxiety (hangover)			1.00	0.710**	0.304*	0.249	0.372*	0.216
State anxiety (no hangover)				1.00	0.109	0.212	0.261	0.266
Alert (hangover)					1.00	-0.062	0.414**	0.040
Alert (no hangover)						1.00	0.043	0.500**
Tranquil (hangover)							1.00	0.168
Tranquil (no hangover)								1.00

* $P < 0.05$.

** $P < 0.01$.

of sleep was negatively related to fatigue and mental inertia (-0.382^{**}).

It was observed that units of alcohol consumed the night before the hangover session was related to physical (0.42^{**}) and emotional (0.418^{**}) symptoms reported during the post intoxication-state but not symptoms of fatigue (see Table 4). The report of hangover experiences was weakly associated with emotional symptoms (0.341^{*}) the morning after alcohol consumption.

Correlational analyses investigating the relationship between perceived stress in the last month and the quantity of alcohol usually consumed and the quantity of alcohol consumed the night before testing revealed no significant relationships.

DISCUSSION

The present study revealed the expected decrease in sleep latency when alcohol was consumed. This is a well-known effect of alcohol consumption (Gresham *et al.*, 1963; Vitiello 1997). The present study also revealed a disturbance in sleep quality and quantity on the night that alcohol was consumed. However this change in sleep pattern was only weakly related to the measured aspects of mood, and hangover signs and symptoms.

The present investigation has established clear evidence to show a post-intoxication effect of alcohol on mood, which is in accordance with the findings of Collins and Chiles (1980). However Smith *et al.* (1995) revealed no effects of either frequency or quantity of alcohol consumption on sober mood states. The Smith *et al.* (1995) investigation was concerned with the residual effects of alcohol and did not assess the direct morning after-effects. The present investigation confirmed the

diurnal optimal level of mood, which was higher at 11:00 and 13:00 h compared to 9:00 h but only when no alcohol was consumed on the previous evening. In contrast the mood ratings recorded the morning after the consumption of alcohol deteriorated throughout the morning. Thus the consumption of alcohol significantly lowers ratings of alertness and tranquility at the time of day when these ratings should be achieving their peak rating.

The study revealed an interaction between state during testing (hangover and no hangover) and order of testing (hangover/no hangover; no hangover/hangover) for reported state anxiety. It is suggested that the morning after alcohol consumption participants remember the previous testing session when they were in the sober state and their anxiety levels increase now that they feel they are in the compromised hangover state.

The present investigation found no significant relationship between the quantity or frequency of alcohol consumption with the measure of perceived stress in the last month. This unexpected result may be explained by the fact that participants may have been consuming alcohol at their optimum level at the time of the study period; thus any perception of additional stress would not be revealed in increased levels of alcohol consumption. It was observed that perceived stress in the last month was related to the measure of anxiety and also related to the measured aspects of mood when in the no hangover state. Thus perceived stress does not increase alcohol consumption, but an increase in stress is associated with an increase in ratings of anxiety. This is consistent across both the hangover and no hangover state. However the consumption of alcohol affects the ratings of mood above and beyond the possible influence of stress on ratings of alertness and tranquillity when no alcohol is consumed. This suggests that the adverse reaction to stress is manifest in higher anxiety and lower mood, and the consumption of alcohol has an additional adverse effect on alertness and tranquillity.

As was expected low scores were obtained from the signs and symptoms questionnaire when participants had not consumed alcohol during the previous evening. Myrsten *et al.* (1980) in a controlled laboratory investigation found few reports of emotional symptoms of hangover. The authors stated that an emotional aspect of the hangover-state may not have emerged due to the experimental conditions. They went further to predict that a genuine hangover would be

Table 3. The mean (SD) for each symptom in each state

	Mean hangover	Mean no hangover	<i>t</i>	SIG
Physical	5.255(2.761)	0.659(1.59)	10.34	***
Emotional	2.595(2.18)	0.936(1.43)	4.95	***
Fatigue	7.234(3.09)	2.297(2.76)	9.21	***

*** $P < 0.001$.

t values and significance levels comparing symptoms between states.

Table 4. The relationship between units consumed the night before, reported hangover experiences, the symptoms reported the morning after alcohol consumption and the morning after no alcohol consumption

	Units	Hangover experiences	Physical (hangover)	Physical (no hangover)	Emotion (hangover)	Emotion (no hangover)	Fatigue (hangover)	Fatigue (no hangover)
Units	1.0	0.199	0.42**	0.033	0.418**	0.123	0.261	0.032
Hangover exp		1.00	0.265	0.152	0.341*	0.095	0.223	0.450**
Physical (hangover)			1.00	0.099	0.594**	-0.094	0.626**	-0.027
Physical (no hangover)				1.00	0.272	0.561**	0.180	0.669**
Emotion (hangover)					1.00	.248	0.651**	0.322**
Emotion (no hangover)						1.00	0.106	0.573**
Fatigue (hangover)							1.00	0.220
Fatigue (no hangover)								1.00

* $P < 0.05$.

** $P < 0.01$.

*** $P < 0.000$.

accompanied by guilt feelings. In the present investigation a genuine hangover was investigated and a significant difference in emotional symptoms revealed, thus offering limited support to the prediction that a true hangover is associated with emotional changes (Myrsten *et al.*, 1980). The possible guilt feelings associated with a 'true' hangover should be subjected to a more refined investigation of emotion during hangover. One possible advance in the investigation would be to employ the Profile of Mood States (POMS) questionnaire. The POMS has been used to evaluate psychiatric patients as well as normal participants. Previous research has found the POMS sensitive to changes associated with psychotherapy (Lorr *et al.*, 1961) and short-term changes associated with tranquillizers such as chlorthalidopoxide (Lorr *et al.*, 1963).

The reported units of alcohol consumed on the night prior to the post-intoxication session were related positively to the measure of emotional distress and measure of fatigue the morning after alcohol consumption. However it was not related to the physical signs of the hangover e.g. headache, nausea. This pattern of results may be explained by the fact that participants' drinking was under their own control so that they could judge the quantity of alcohol they drank to attain a feeling of 'drunkenness' without feeling sick the next day. The reported symptoms did not decrease significantly throughout the morning testing session, showing that the subjective experience of hangovers had not subsided by 13:00 h, so participants still felt fatigued with physical discomfort and emotional distress.

Regarding the affective measures, participants are again showing dysfunction during the hangover state compared to the no hangover state. They exhibit high levels of anxiety and participants are less alert and less tranquil the morning after alcohol consumption. Myrsten *et al.* (1980) failed to show emotional hangover effects. However the naturalistic hangover investigated in the present study revealed an emotional aspect of hangover symptoms in conjunction with the physical symptoms and the symptoms of fatigue.

The present investigation relied on self-reports of alcohol consumption and as with most alcohol research there may have been cases of under reporting and over reporting. All participants were volunteers; thus their motivation for taking part was not influenced by payment or course credit.

CONCLUSIONS

This study revealed a very high level of alcohol consumption among a student population. It also revealed that heavy alcohol consumption lowers mood, disrupts sleep, increases anxiety and produces physical symptoms, emotional symptoms, and symptoms of fatigue throughout the next morning.

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