

The effects of hangover on performance

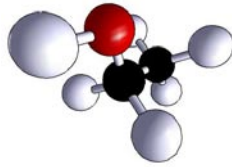
INTRODUCTION

Carry-over effects of alcohol (or hangover effects) on behaviour are still poorly understood despite previous research. Little is known about the physiology underlying the hangover condition. It is unclear whether hangover signs and symptoms are caused by the direct effect of alcohol on the body, a consequence of this effect or a combination of both.

The literature on morning after or carry over effects of alcohol is equivocal. Some studies report behavioural impairment and others fail to detect such effects. The main reason for these discrepancies may be attributed to differences in methodologies between studies. However, one of the main criticisms of hangover research is that it is conducted mainly in conditions, which do not resemble the usual way in which a hangover is attained. In general, the research is dominated by laboratory-style experiments in which volunteers (usually fasted males) are instructed what and when to drink alcohol, usually in a single dose.

The current study, carried out by Frances Finnigan and Daniela Schulze at the Caledonian University, Glasgow explored hangover effects in social drinkers the morning after a self-administered dose of alcohol. The hangover was acquired in a naturalistic situation. A mixed design was employed: participants were tested twice (within subject), and a control group was used (between subject design).

Healthy volunteers were screened and attended the laboratory for baseline recordings after staying abstinent from alcohol the night before. They were randomly allocated to a hangover or control group. Subsequently they attended the laboratory again, either after staying abstinent from alcohol the night before (control group) or after consuming alcohol and acquiring a hangover (hangover group). It was stressed to participants that they should continue with their normal drinking patterns and that they were not to acquire a hangover for the purpose of this research. Psychomotor performance was measured using the following tasks: a) dual task: Tracking/Reaction Time, b) Memory task, and c) Vigilance task. Such tasks have obvious analogues in many work places and are similar to some aspects of driving. They have been described in details elsewhere (Finnigan, Hammersley & Cooper, 1999).

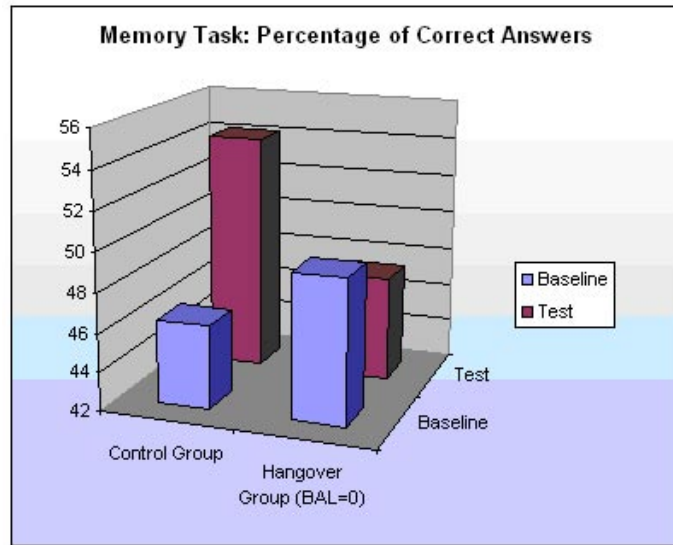
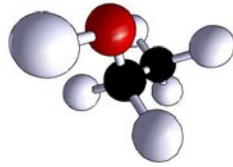


Eighty participants (40 male, 40 female) with an average age of 24.8 years ($SD=6.8$, range 18-48) took part in the experiment. They reported that they consumed 13.4 units of alcohol ($SD=7.7$) on average per drinking session, 2.1 times per week ($SD1.1$). All participants were in good health. They all gave informed consent before participating in the study. Participants were paid a disturbance fee.

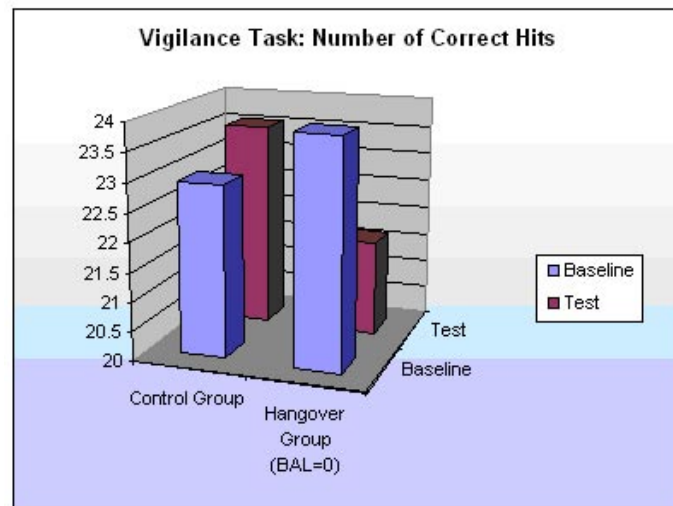
FINDINGS

- In the hangover group, 24 participants (60%) returned to the laboratory the morning after drinking with a BAL of 0 mg/100ml; the other 16 participants (40%) had a BAL ranging from 1 to 124 mg/100ml the morning after a self-administered dose of alcohol.
- All subjects in the hangover group reported hangover effects. Participants seemed to be most affected by drowsiness and fatigue. Most people also experienced some form of headaches and nausea. Least commonly reported were irritability, followed by shakes and sweats, followed by disorientation. Among those who reported hangover effects it was expected that performance would be worse on tasks where concentration and attention to fast-moving objects on the computer screen are required (i.e. the vigilance task).
- To portray true hangover effects, only participants whose BAL was 0 were included in the analysis. Significant differences between control and hangover group were found for the memory and vigilance task.
- For the vigilance task, the hangover group's performance was worse than the control group's performance during the testing session, whereas on the memory task the significant effect was due to the improvement of the control group from baseline to testing session. However, this ability to improve performance and to learn new strategies and improve memory performance was hindered in the hangover group.

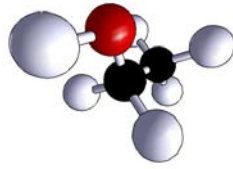
See graphs 1 and 2 for more details.



Graph 1. Control and Hangover Group's Performance on the Memory Task in Baseline and Testing Conditions



Graph 2. Control and Hangover Group's Performance on the Vigilance Task in Baseline and Testing Conditions



IMPLICATIONS

- The morning after a drinking session 40% of the participants returned with a BAL above zero. Some of those participants were over the legal limit for driving. This finding has serious implications both for those people who drink heavily and drive or work machinery the morning after drinking and for those who educate the public on drinking and safe driving and occupational practices and policies. The public needs to be educated that BAL will not necessarily have returned to zero the morning after a heavy drinking session. The belief that going to bed and sleeping for a few hours is enough to ameliorate alcohol's effect is wrong.
- For those participants whose BAL had returned to zero, task performance the morning after heavy drinking significantly impaired task performance on the memory and vigilance tasks. Those tasks have obvious analogues in driving and in operating machinery and in other everyday tasks. Therefore the results have important implications for advising the public and professional bodies on health and safety issues related to drinking.

References

Finnigan, F., Hammersley, R. H. & Cooper, T. (1998). An examination of next-day hangover effects after a moderate dose of alcohol. *Addiction*, 93, 12, 1829-1838.

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ALCOHOL INSIGHTS

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