



# Emotional information processing during alcohol hangover

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## Background

Various studies have investigated the effects of alcohol hangover on cognitive functioning and mood. This research of independent assessments of mood and performance shows that both are negatively affected. The aim of this study was to examine their combined effect, employing the emotional Stroop test, to investigate alcohol hangover effects on emotional information processing.

## Methods

N=25 UK young adults participated in a naturalistic study. On a hangover day and an alcohol-free control day, subjects completed a test battery consisting of the emotional Stroop test (social, physical, and no threat items), attentional blink test and Eriksen flanker task (selective attention), a choice serial reaction time test, and the psychomotor vigilance test (PVT). Reaction times and number of errors were variables of interest and compared between the hangover day and control day.

## Results

On the emotional Stroop test, in the hangover condition responses to social threat, physical threat, and control items (no threat) were significantly slower than in the control condition. On the Eriksen flanker test and PVT significantly slower reaction times were found in the hangover condition. No effects on number of errors were observed, and the number of lapses in the PVT did not significantly differ between the hangover and control test day. On the choice serial reaction time test, RT's were significantly slower on the hangover day.

**Disease**

Physical threat words

**Pathetic**

Social threat words

**Holiday**

Non-threat treat words

In the **Emotional Stroop task** subjects had to respond by button press to 12 physical threat words (e.g. disease, coffin), 12 social threat words (e.g. pathetic, foolish) and 24 non-threat words (e.g. playful, holiday).

	Hangover day	Control day	p-value
<b>Emotional Stroop test</b>			
Physical threat words (RT)	1245.6 (287.2)	1102.9 (249.7)	.01*
Social threat words (RT)	1543.1 (288.6)	1341.0 (361.5)	<.0001*
Neutral words (RT)	1553.1 (361.51)	1266.01 (165.3)	.001*
Overall Interference (RT)	1235.6 (466.3)	1177.8 (378.8)	n.s.
Number of errors	3.2 (3.9)	3.2 (3.3)	n.s.
<b>Eriksen's Flanker test</b>			
Overall RT	548.4 (116.2)	511.9 (67.8)	.04*
Compatibility (dif.)	38.6 (30.6)	21.8 (24.6)	n.s.
Distance (dif.)	47.0 (39.8)	25.8 (42.7)	n.s.
Number of errors	2.2 (1.8)	2.2 (1.4)	n.s.
<b>Attentional Blink</b>			
Overall	10.0 (5.3)	7.3 (5.1)	.01*
Target Type 1	13.3 (9.1)	9.9 (8.6)	.05
Target Type 2	6.8 (6.3)	4.7 (4.8)	n.s.
<b>SCSRTT</b>			
Move Time (RT)	671.7 (72.8)	614.4 (55.4)	<.001*
Return Time (RT)	443.6 (85.2)	400.2 (59.6)	.02*
Interference	228.0 (76.8)	214.2 (67.0)	.04*
<b>Psychomotor Vigilance</b>			
RT	317.6 (92.6)	259.6 (89.0)	<.001*
Lapses	11.9 (11.0)	8.8 (10.6)	n.s.

Table 1. Summary of the results from the cognitive test battery.

## Conclusions

**Emotional information processing was significantly impaired during alcohol hangover. The observed slower response times confirm the assumption that cognitive resources to perform tasks are suboptimal during the alcohol hangover.**

## Disclosure of interests

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