

Effects of acute alcohol consumption on the Moses illusion

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BACKGROUND

What is the Moses illusion?

= **Semantic illusion** in which people fail to detect an incorrect name despite knowing the correct answer.

Example: “How many animals did Moses take on the Ark?” → Many people answer “two” despite knowing it was Noah, not Moses.

Why study alcohol?

The Moses illusion may occur when intuitive processing overrides cognitive control.

→ As alcohol impairs cognitive control, it may increase susceptibility to the illusion.

Focalization effect

Emphasizing the incorrect name decreases Moses illusion rates.



AIM

1 Test whether moderate alcohol consumption increases susceptibility to the Moses illusion.

2 Replicate the focalization effect.

→ Alcohol was expected to increase illusion rates, whereas focalization was expected to decrease them.



METHODS

Participants (N = 81):

Mean age = 22 years (SD = 2.3);
n = 30 women

- Alcohol group: n = 41
- Placebo group: n = 40

Design:

- Single-blind
- Alcohol dose: 0.5 g/kg

Moses illusion questionnaire:

- Multiple-choice responses (true, false, “I don’t know”)
- Focalization on the incorrect name / No focalization
- Filler items

Measures:

- Moses illusion rate
- Breath alcohol concentration (BrAC)
- Subjective alcohol intoxication

Examples of Moses illusion item:

- It was Magellan (Columbus) who discovered America at the end of the 15th century. = *Item with focalization*
- It was two animals of each species that Moses (Noah) took into his ark. = *Item without focalization*



CONCLUSION

Moderate acute alcohol intoxication did not increase susceptibility to the Moses illusion.

→ This suggests that the illusion is not primarily driven by impaired cognitive control.

The focalization effect was successfully replicated.

→ This effect can be effectively measured using a multiple-choice paradigm.

Focalization, but not alcohol intoxication, appears to influence susceptibility to the Moses illusion.

→ Future research should examine the effects of higher alcohol doses.



RESULTS

No significant main effect of **alcohol consumption** on Moses illusion rates ($\chi^2(1) = 0.69, p = .41$).

Significant main effect of **focalization** ($\chi^2(1) = 17.72, p < .001$).

Overall Moses illusion rate: 21%.

Focalization reduced the odds of experiencing the Moses illusion by:

- 49% in the placebo group (OR = 0.51).
- 73% in the alcohol group (OR = 0.27).

Manipulation check:

- Higher subjective intoxication in the alcohol group.
- Subjective intoxication reported in the placebo group (>0) → Successful placebo manipulation.



Scan to view the results figure.

Table 1. Moses illusion rate (%) depending on the group and the focalization.

	Alcohol group	Placebo group
Focalization	9.8	17.1
No focalization	28.4	28.6

