



Hormonal Birth Control & Alcohol Study

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Background

- Progesterone has been shown to reduce drug cravings in both humans and animals (e.g., Milivojevic et al., 2016).
- Hormonal contraceptives are composed of synthetic hormones (Regidor, 2018).
- Progestins, a synthetic form of progesterone found in hormonal contraceptives, do not break down into the same metabolites as progesterone does (Regidor, 2018).
- Allopregnanolone, a metabolite of progesterone thought to reduce drug cravings, is absent in individuals who use hormonal contraceptives (Morrow et al., 2020).

Hypothesis

- We expect that women on hormonal birth control will have higher baseline levels of cravings than women who are naturally cycling.
- Further, we predict that in response to the alcohol prime, women on hormonal birth control will show higher alcohol cravings than naturally cycling women.

References

- Milivojevic, V., Fox, H. C., Sofuoglu, M., Covault, J., & Sinha, R. (2015). Effects of progesterone stimulated allopregnanolone on craving and stress response in cocaine dependent men and women. *Psychoneuroendocrinology*, 65, 44-53.
- Regidor, Pedro-Antonio. (2018). The clinical relevance of progestogens in hormonal contraception: Present status and future developments. *Oncotarget*, 9(77), 34628-34638.
- Morrow, L. A., Boero, G., & Porcu, P. (2019). A rationale for allopregnanolone treatment of alcohol use disorders: Basic and clinical studies. *Alcoholism: Clinical and Experimental Research*, 44(2), 320-339.

Methods

- $N=133$ participants who were assigned female at birth, between the ages 18-35 years old, and not pregnant or breastfeeding. The sample comprised of 54 hormonal contraceptive (HC) users and 79 naturally cycling (NC) women.
- Participants filled out questionnaires regarding alcohol craving in the present moment and the intention to consume alcohol.
- Participants were then randomly assigned into one of two experimental conditions: an alcohol priming condition or a neutral condition.
- After the video stimulus, participants were asked to complete the same alcohol craving and drinking intention questionnaire administered at baseline.



A short video clip will be used to prime alcohol craving and intention to consume alcohol.

Alcohol Prime (left)
Neutral Clip (right)



Discussion

- Prior to watching the stimulus, hormonal contraceptive users reported higher alcohol cravings and usage than naturally cycling women.
- The results suggest that alcohol priming may only affect women's intentions to drink alcohol if they are on hormonal contraceptives.
- These findings suggest hormonal contraceptive users may benefit from more closely monitoring their alcohol consumption and alcohol cravings.

Limitations

- Social pressure and stigma can lead to the underreporting of alcohol consumptions or hormonal contraceptive use, contributing to self-report bias.
- Limited sample diversity can lead to reduced generalizability of findings to broader populations.

Results

Measurements before experimental condition:

- HC users ($M = 2.79$, $SD = 1.04$) had greater alcohol craving than NC women ($M = 2.25$, $SD = 1.03$).
- HC users ($M = 0.34$, $SD = 0.72$) reported greater alcohol use compared to NC women ($M = -0.22$, $SD = 0.86$) via AUDIT scale.
- HC users ($M = 3.89$, $SD = 3.63$) reported greater alcohol consumption in a week compared to NC women ($M = 2.22$, $SD = 3.82$).

Measurements after experimental condition:

- **Intention to drink alcohol:** significant three-way interaction detected between time point, condition, and HC use, $F(1,113) = 4.57$, $p = 0.035$. For HC users who watched the alcohol prime video, there was a significant increase in reported intention to drink alcohol at time 2 compared to time 1, $p = 0.015$. However, for HC users who watched the control video, there was no difference in reported intention to drink across timepoints, $p = 0.322$. Moreover, for NC women, across both prime and control conditions, there was no significant difference in reported intention to drink alcohol between time points, $ps \geq 0.243$.
- **Alcohol craving in the present moment:** no significant three-way interaction, $F(1,109) = .004$, $p = .952$. No significant difference between HC users and NC women was detected, $F(1,109) = 1.905$, $p = .170$.