BACKGROUND

- The use of hormonal contraception has been shown to alter both brain structure and function.
- Emotional memory research has had mixed findings - some have found increased memory accuracy for negative emotional events when compared to a neutral event, while others have found that emotional memories are more susceptible to misinformation and thus decreased accuracy.
- Previous studies regarding emotional memory have discovered that women on an oral hormonal contraceptive (OC) correctly recall more gist information of an emotional story, whereas naturally cycling women (NC) will be more likely to correctly remember more details of the same story. However, these studies have utilized primarily visual stimuli (a video or a slideshow with narration) and have not isolated auditory stimuli alone.

MATERIALS

- Analysis Methods: A Signal Detection Theory (SDT) model was employed to assess participants' recall accuracy. The recall accuracy was considered more accurate when Hit Rates (HR) were high and False Alarm Rates (FAR) were low. The following equations were used:

\[
\text{Hit Rate (HR)} = \frac{TP}{TP + FN} \\
\text{False Alarm Rate (FAR)} = \frac{FP}{FP + TN}
\]

RESULTS

RESULTS cont.

- The following stories were used as the scripts for the narrated stimuli. The emotional story was adapted from Cahill et al. (1994).

The Effects of Hormonal Contraception on Auditory Emotional Memory

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METHODS

Participants: Female participants (N = 90; 18-33 years old, M = 20.5, SD = 2.4), who were either naturally cycling (N = 45; NC) for at least the last 3 months (no form of hormonal birth control) or on an oral hormonal contraceptive (N = 45; OC) for at least the last 3 months (either combined or progestin-only).

- Following the eligibility questionnaire, participants completed a Positive and Negative Affect Scale (PANAS) in order to assess their baseline affective state.
- They were then randomly assigned to hear a narrated story with (neutral [N] or emotional [E]) stimuli (a video or a slideshow with narration) and have not isolated auditory stimuli alone.

RESULTS

Emotional Memory Acquisition

- Neither OC women (N [44] = 5, p = .06) nor NC women (N [33] = 3, p = .73) showed a significant change in their negative PANAS scores between baseline (OC: M = 17.51, SD = 6.51; NC: M = 18.16, SD = 7.38) and stimulus (OC: M = 16.64, SD = 6.16; NC: M = 17.57, SD = 9.01) for the emotional condition.
- However, for the neutral stimulus, naturally cycling women showed a decrease in negative arousal scores from baseline (M = 18.16, SD = 7.38) to after the stimulus was presented (M = 14.54, SD = 4.85; N [44] = 5, p = .05).

Emotional Arousal

- Neutral Tone: For neutral tone, neither group showed a significant difference in negative PANAS scores across time (OC: M [39] = 33.25, SD = 40.58; NC: M [25] = 37.17, SD = 33.92; t(64) = .7, p = .49).
- Emotional Tone: Women on an oral hormonal contraceptive will have a more accurate memory for emotional events. Nature, 371(6499), 702

DISCUSSION

- Contrary to previous studies, these findings did not demonstrate a significant difference in recall accuracy for auditory emotional memories between naturally cycling women and women on an oral hormonal contraceptive.
- The findings did demonstrate increased recalled elements (both correct and incorrect) for the neutral story compared to the emotional story.
- Participants were also more accurate when recalling gist information compared to detailed information, regardless of narrative content.

REFERENCES


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