



SLEEP

2022

CHARLOTTE, NC | JUNE 04-08

Menstrual cycle- related changes in sleep-dependent emotional memory consolidation

A JOINT MEETING

AASIM American Academy of
SLEEP MEDICINE

 Sleep Research Society®
Advancing Sleep & Circadian Science

Jing Zhang

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1. Within the past 24 months, I have not had/do not currently have any relationships with any ineligible companies whose primary business is producing, marketing, selling, re-selling, or distributing healthcare products used by or on patients, **OR**

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2. Within the past 24 months, I have had/currently have the following relationships with ineligible companies whose primary business is producing, marketing, selling, re-selling, or distributing healthcare products used by or on patients.

The Nature of the Relationship(s)	The Name(s) of the Ineligible Company(ies)
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3. The material presented in this lecture has no relationship with any of these potential conflicts, **OR**

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- 2.
- 3.

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She's on her period!



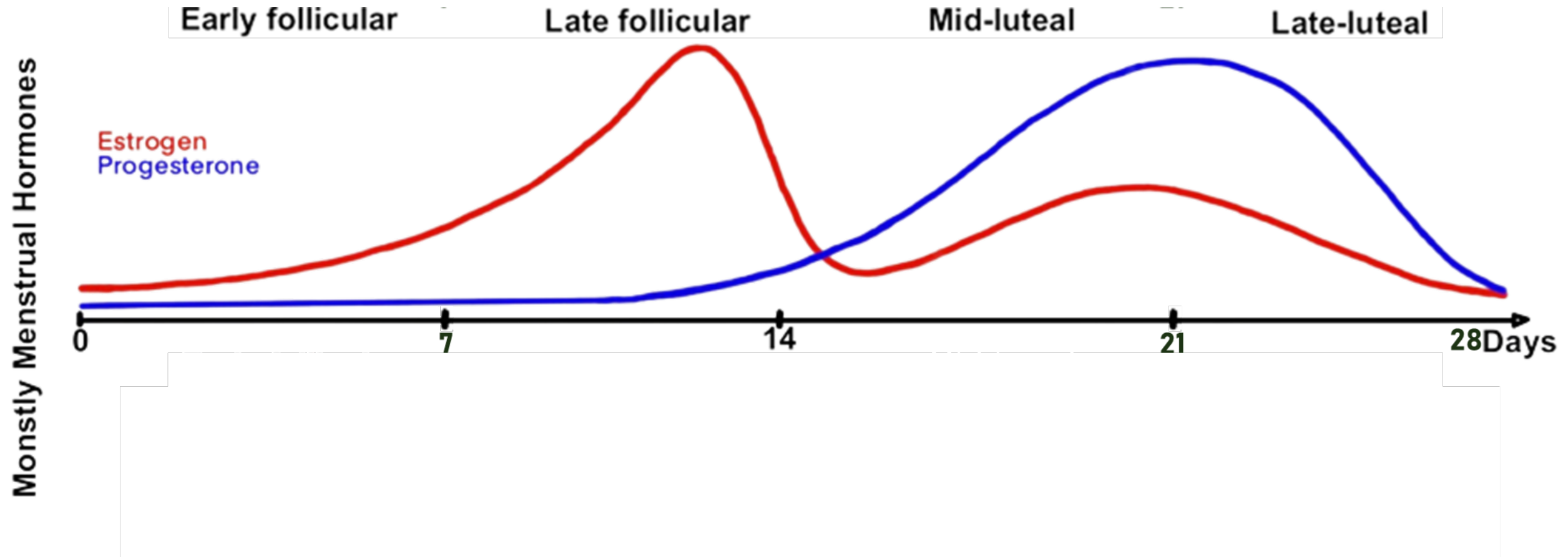
These Hysterical Women

CRYING . . . sobbing . . . laughing! help her. How well and happy she might be.
She has no control of herself . . .

When she's on her period and hears
you breathing

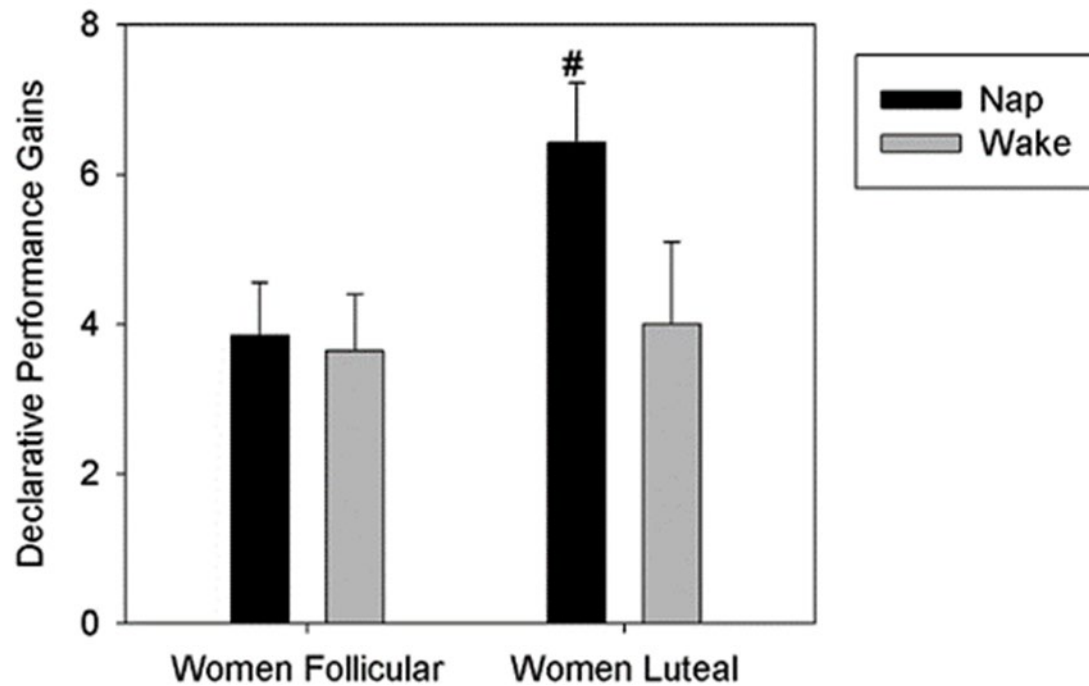


Sex hormones across a menstrual cycle



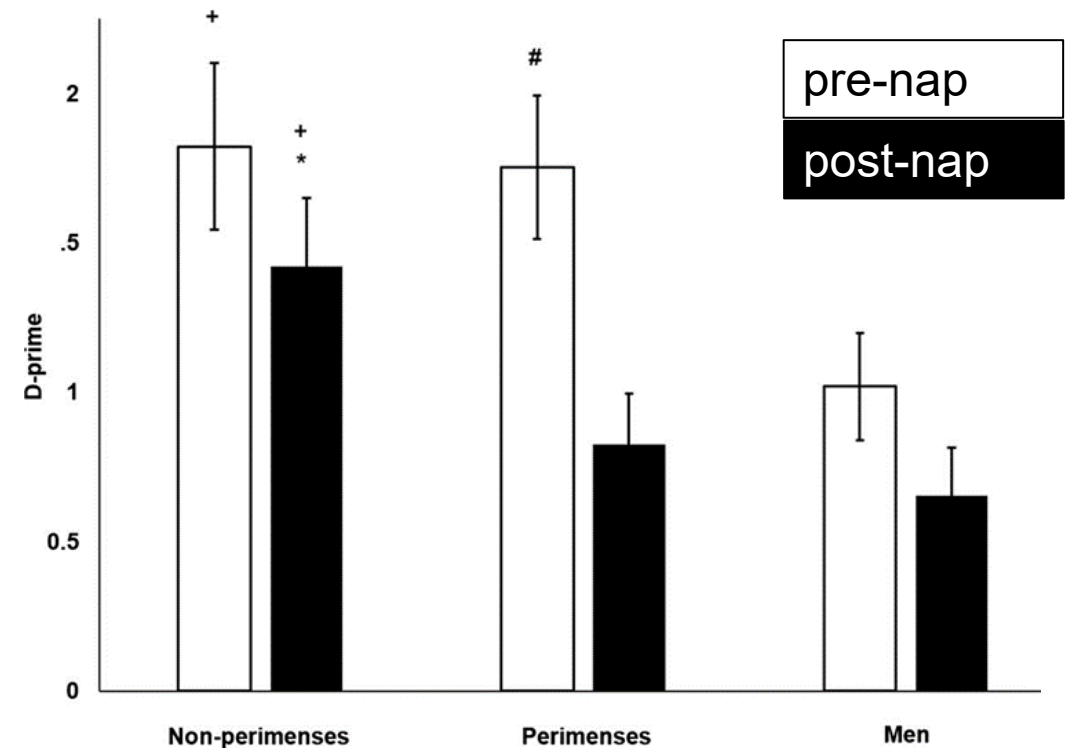
Sex hormones and memory

- High hormone phase leads to better declarative memory after a nap



Adapted from Genzel et al., 2011

- Women have better declarative memory than men
- Women benefit more from a nap during high hormone



Adapted from Sattari et al., 2017

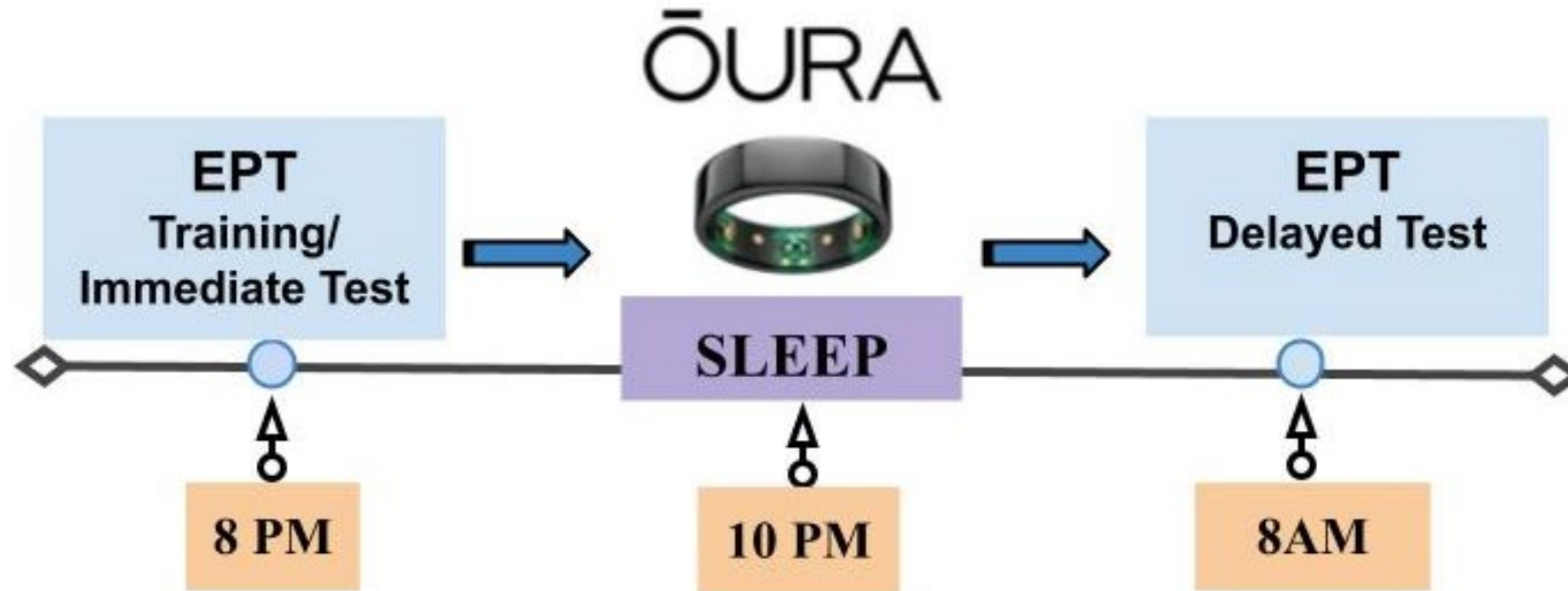
Sex hormones and emotional memory

- Emotional memory: the ability to consciously remember experiences that evoked an emotional reaction
- How sleep-dependent emotional reactivity and memory consolidation changes across the menstrual cycle in young and midlife women?

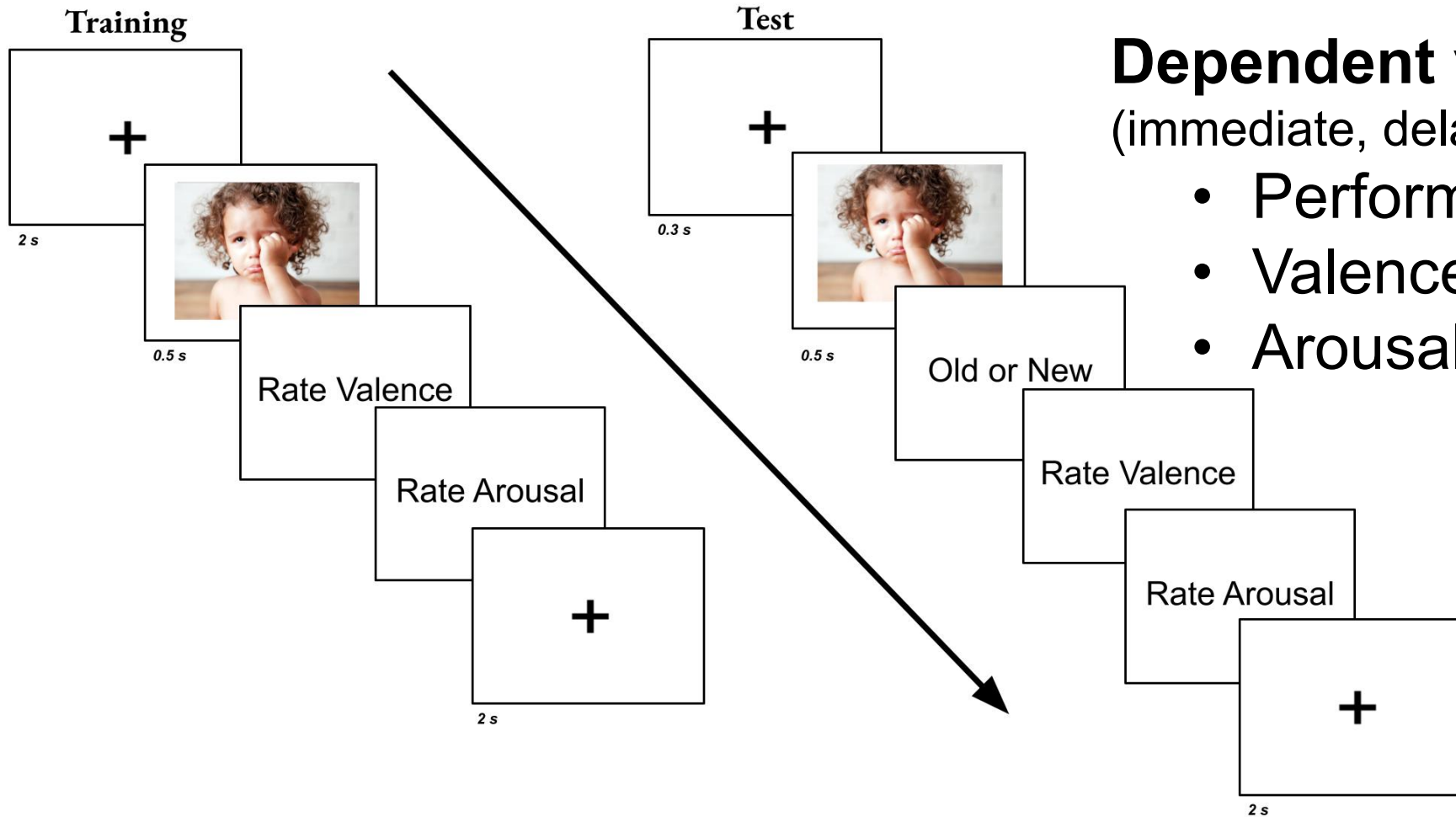


Study Protocol

- 35 young (24.91 ± 5.71) and 33 midlife (47.88 ± 2.86) women
- 4 remote visits at each menstrual cycle phase



Emotional Picture Task

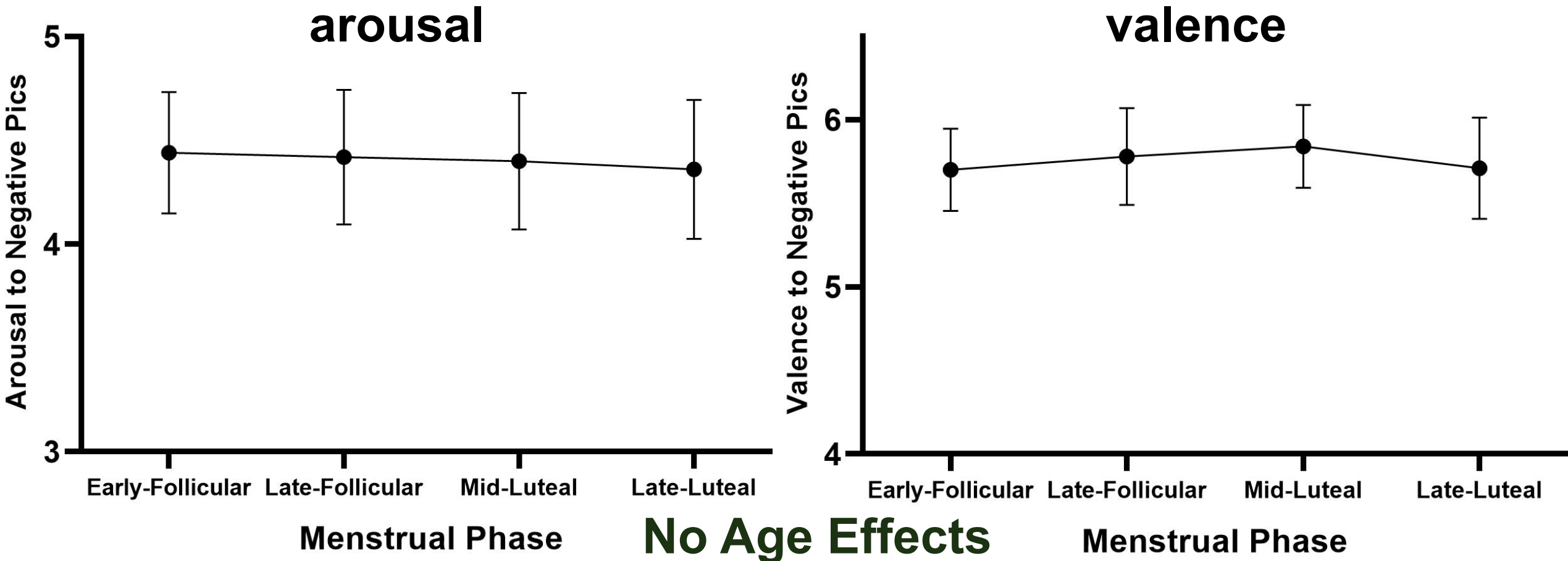


Dependent variables

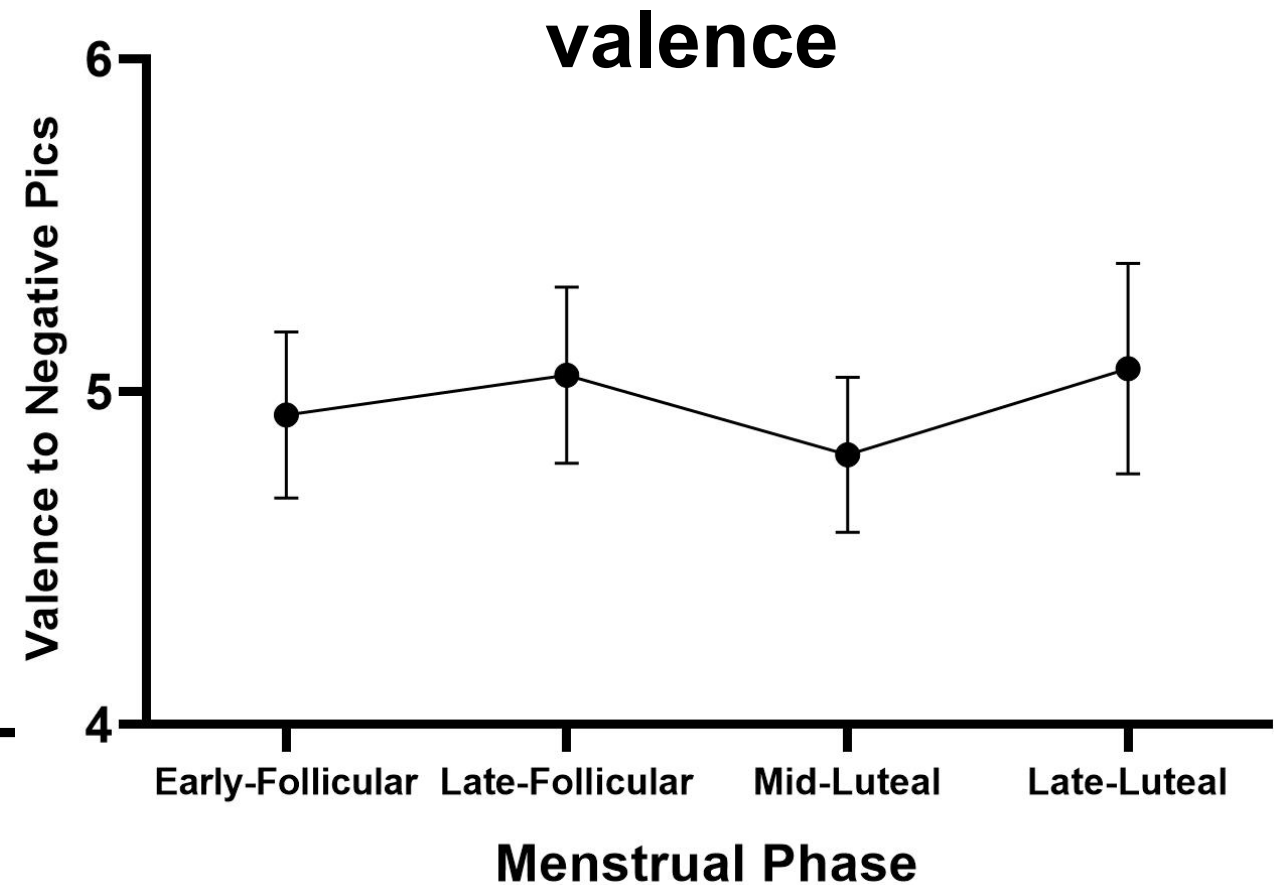
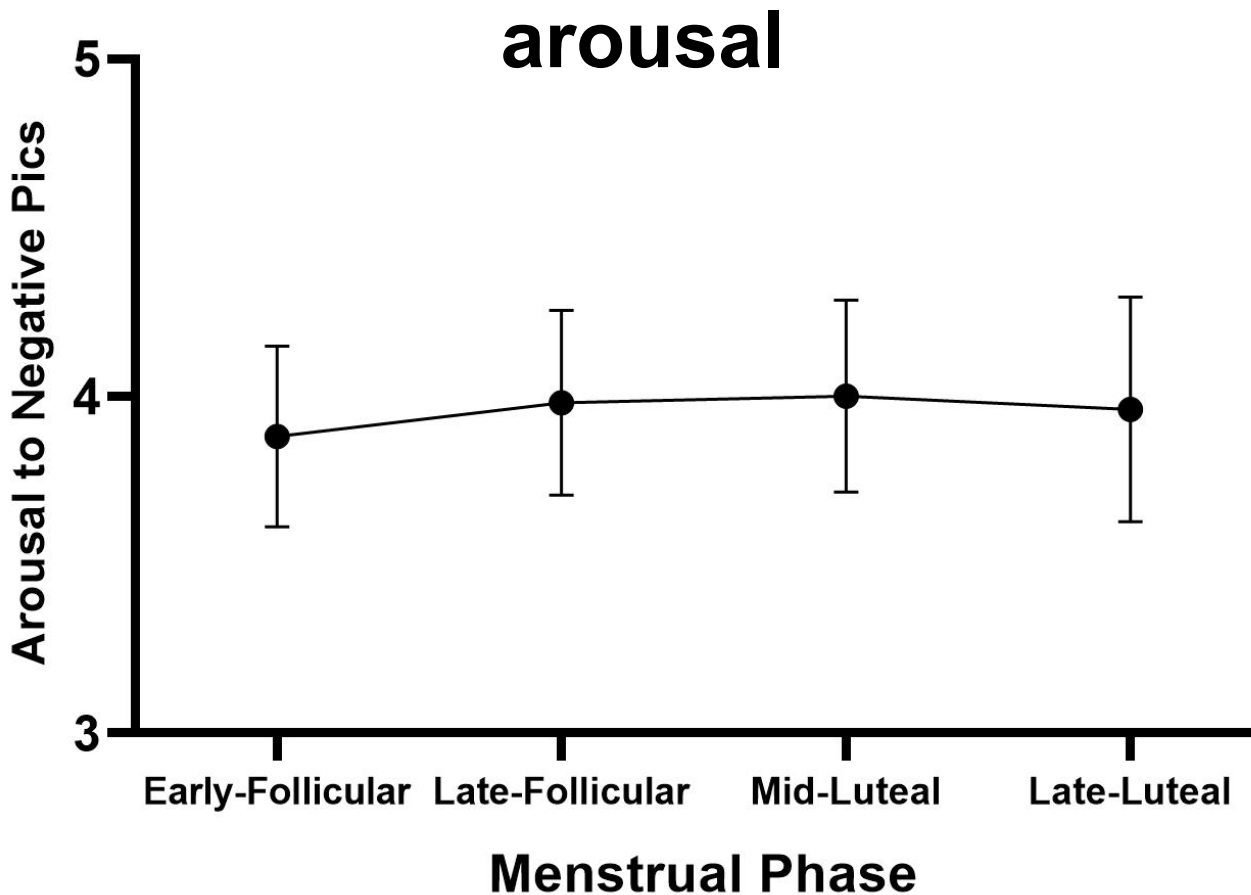
(immediate, delayed, difference score):

- Performance: d'
- Valence
- Arousal

No change in **arousal/valence** across the menstrual cycle: *immediate test*

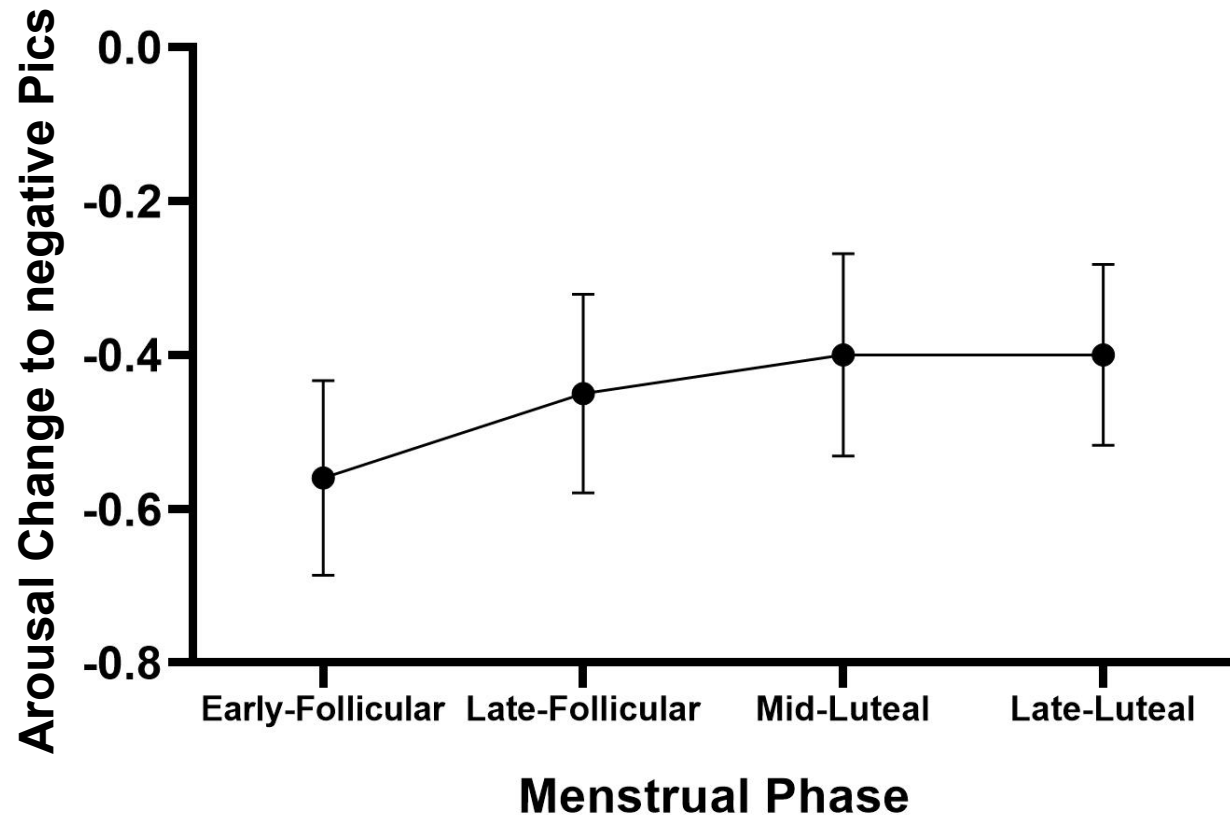


No change in **arousal/valence** across the menstrual cycle: *delayed test*

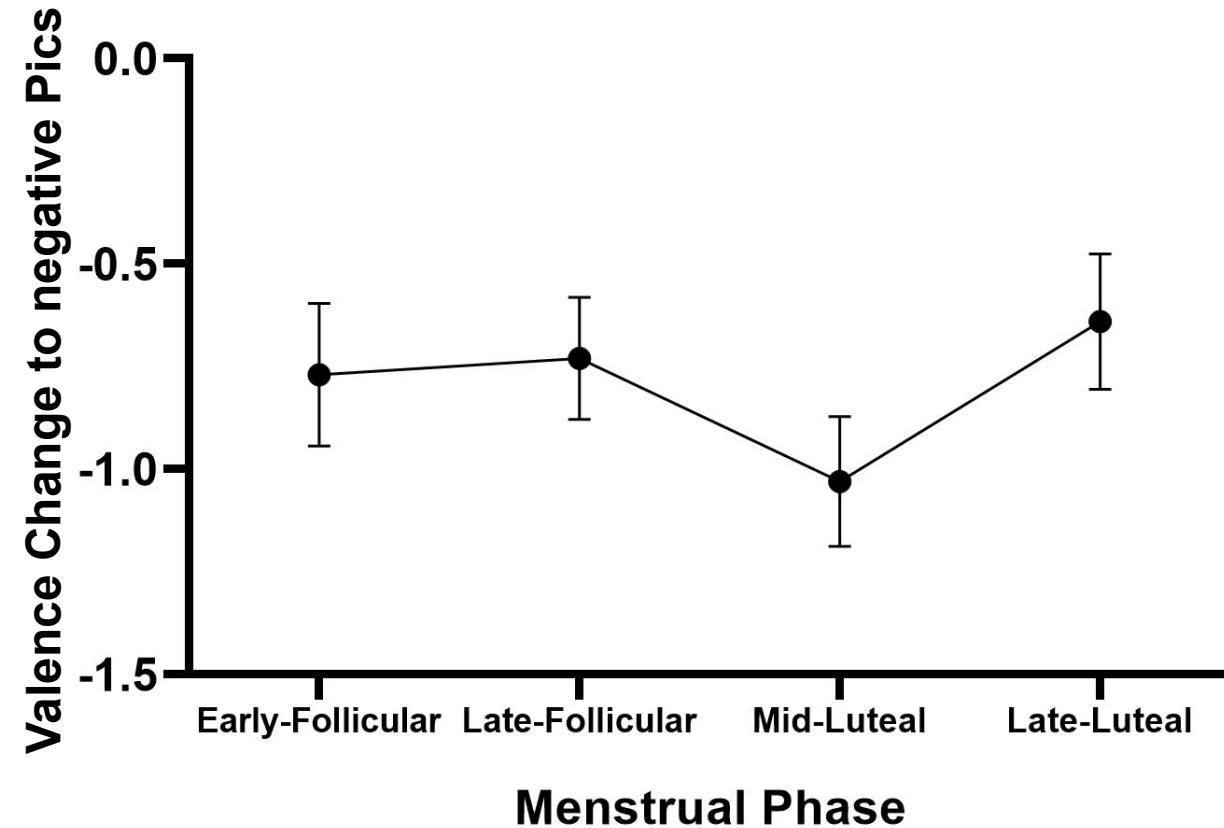


No change in **arousal/valence** across the menstrual cycle: *difference score*

arousal

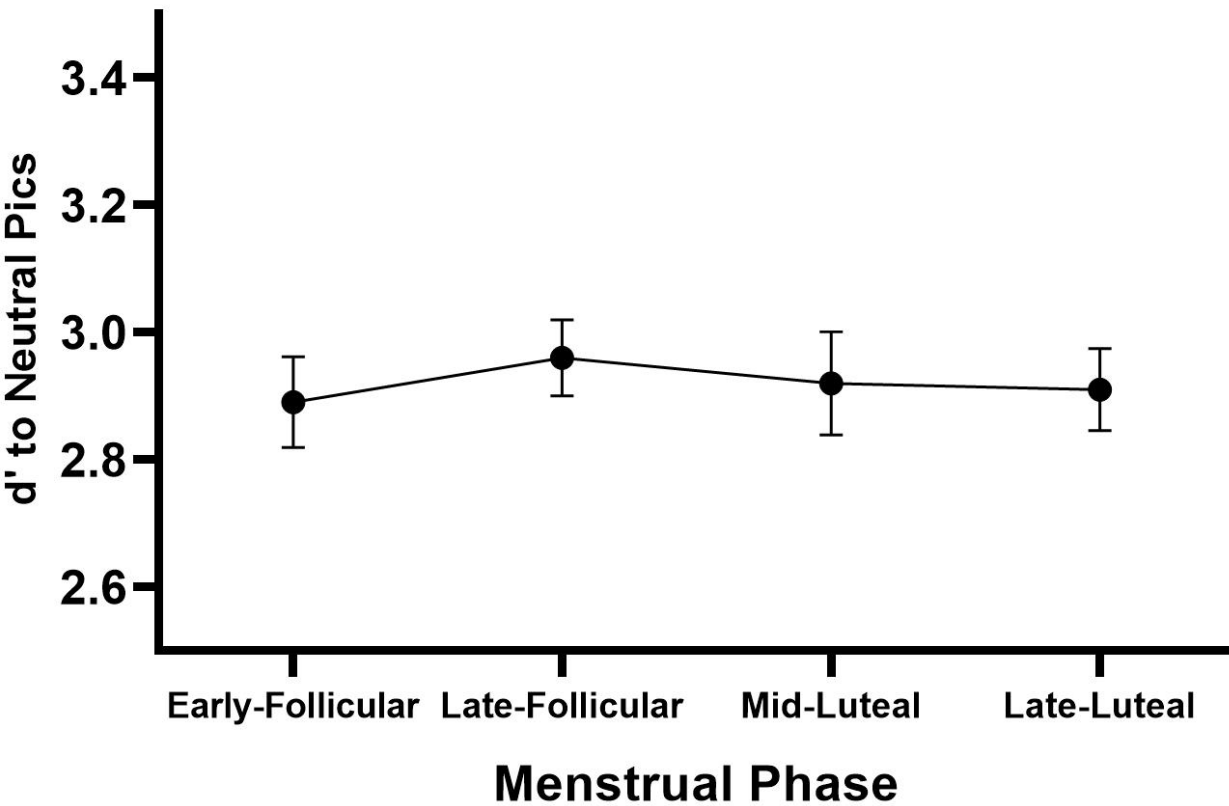


valence

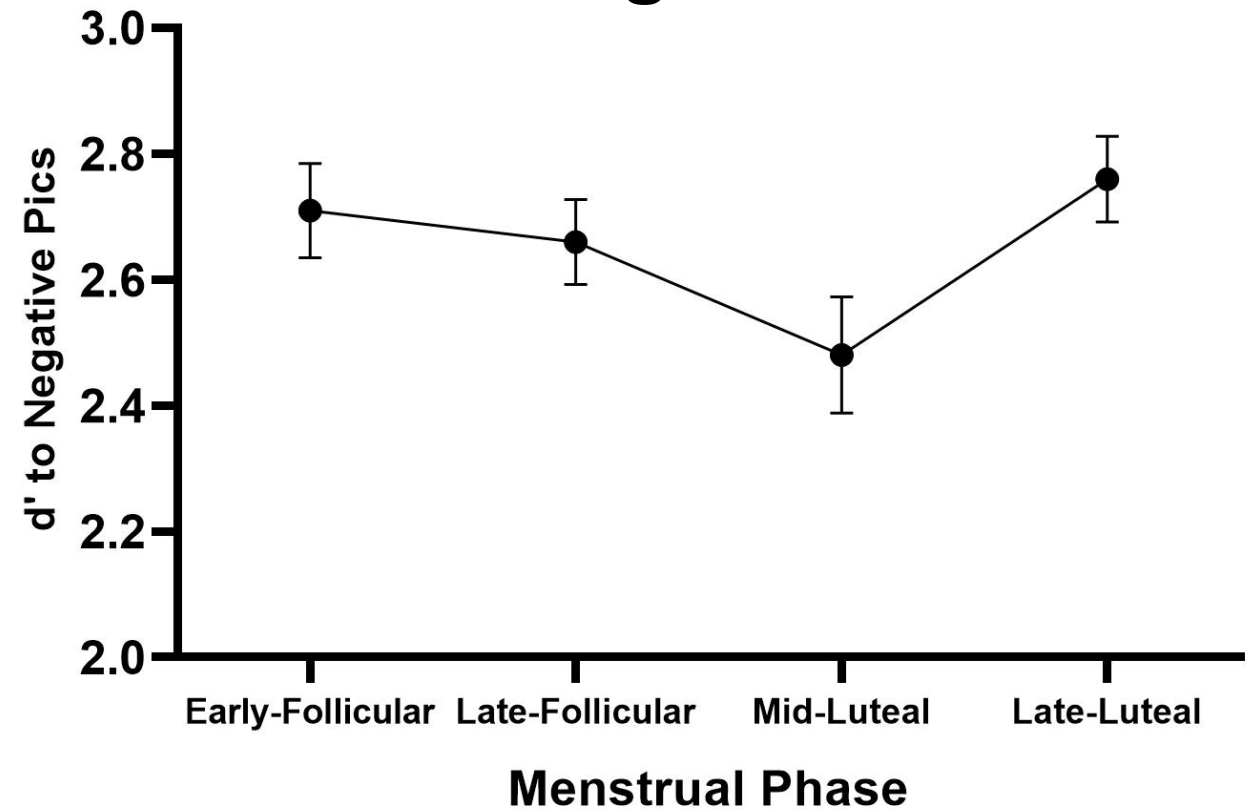


No change in **memory** across the menstrual cycle: *immediate test*

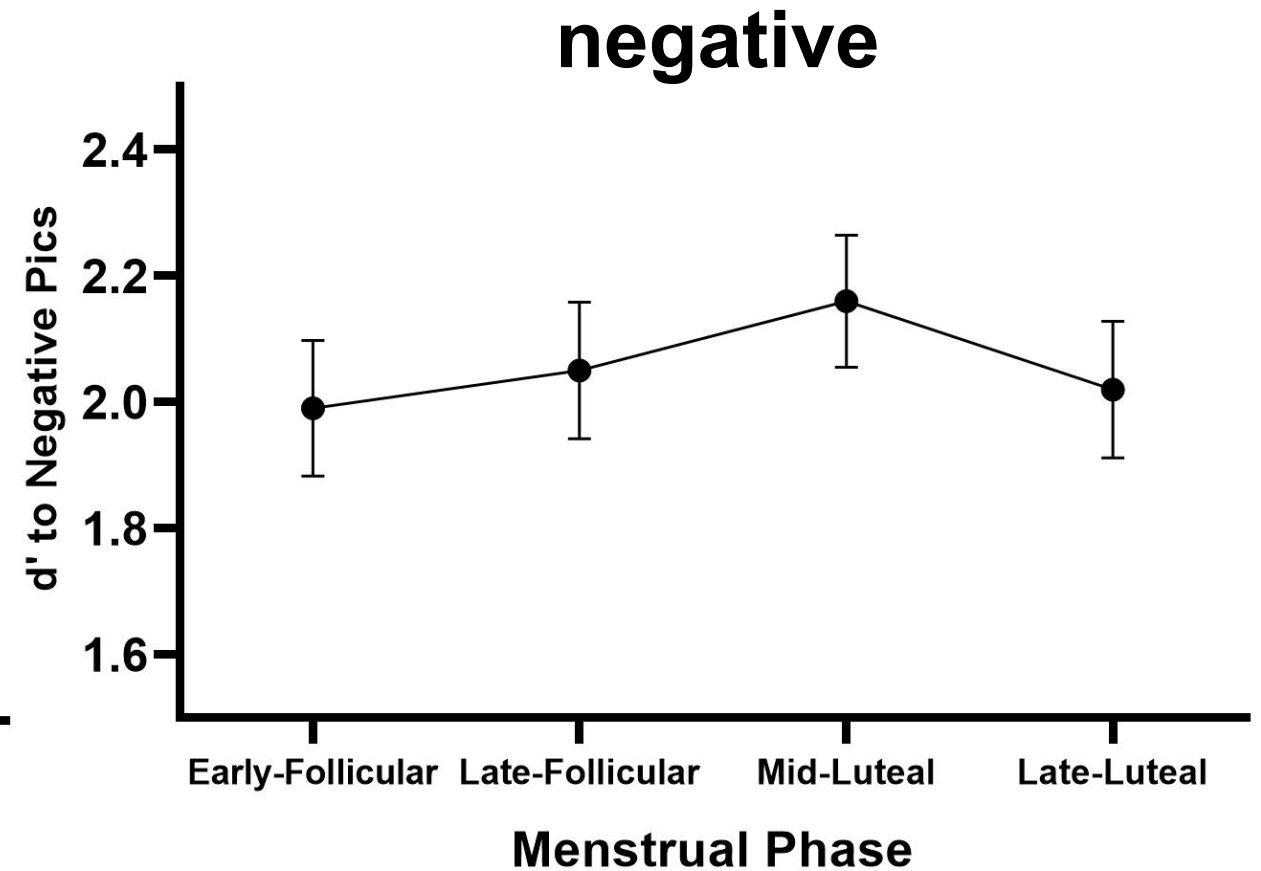
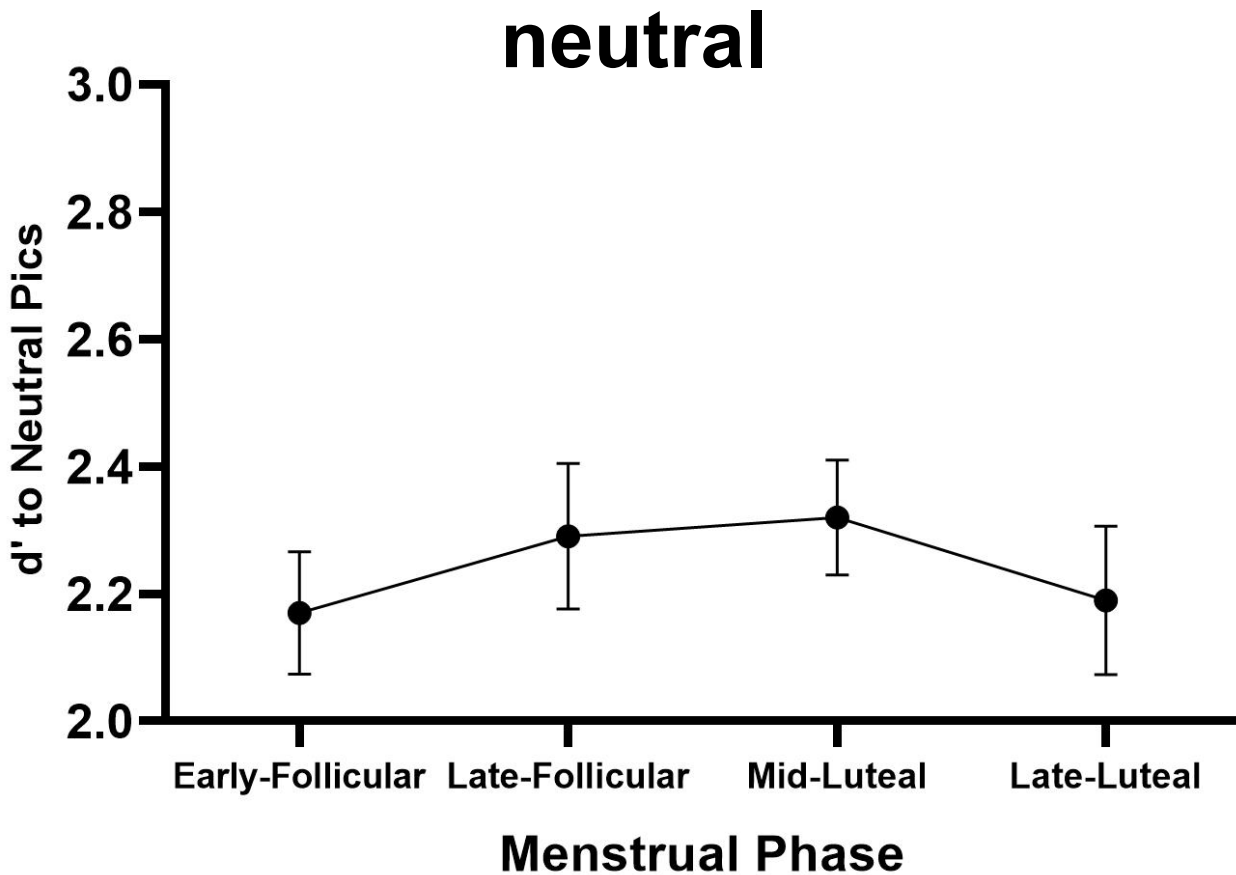
neutral



negative

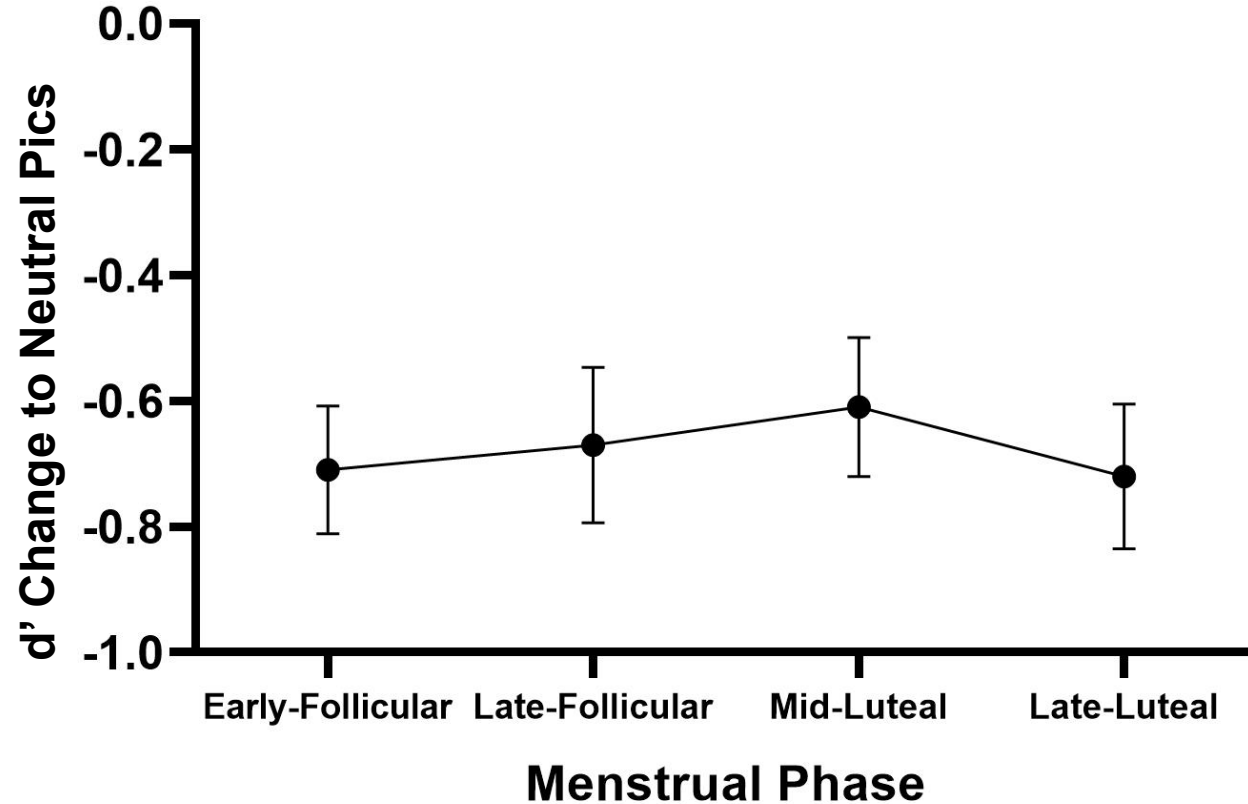


No change in **memory** across the menstrual cycle: *delayed test*

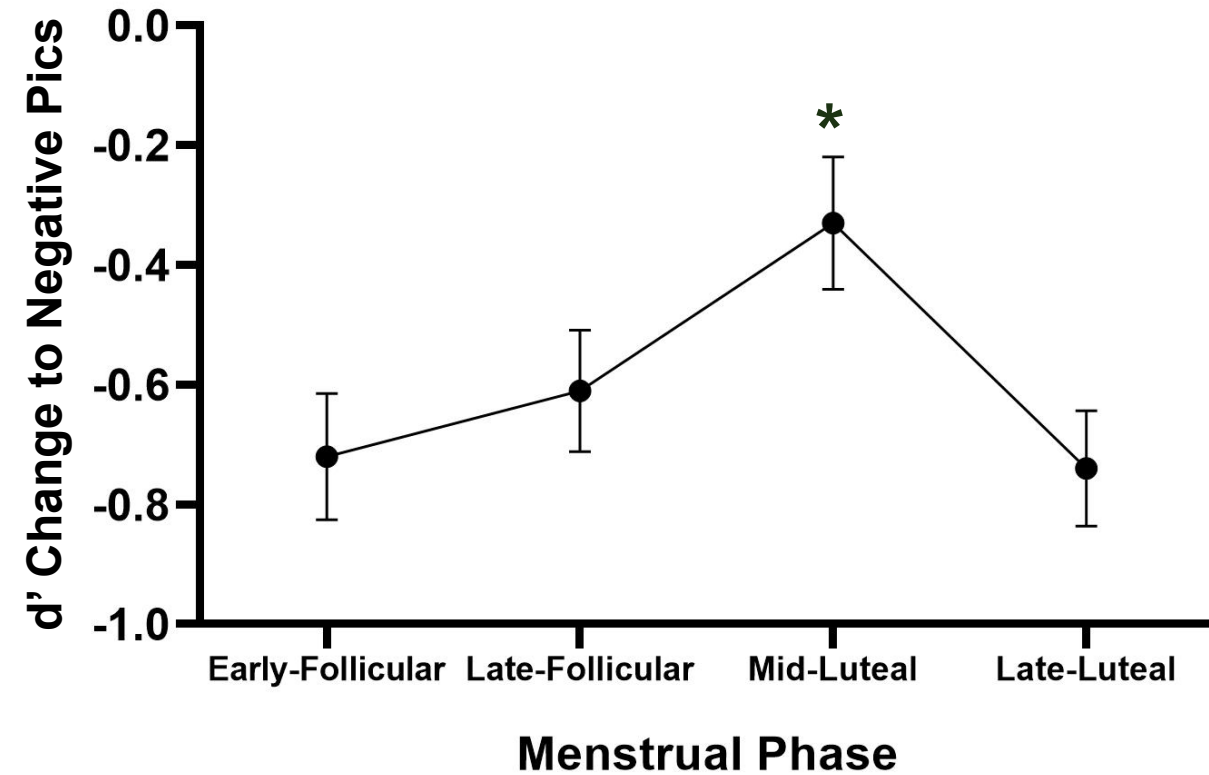


High sex hormones = Better sleep-dependent emotional memory

neutral

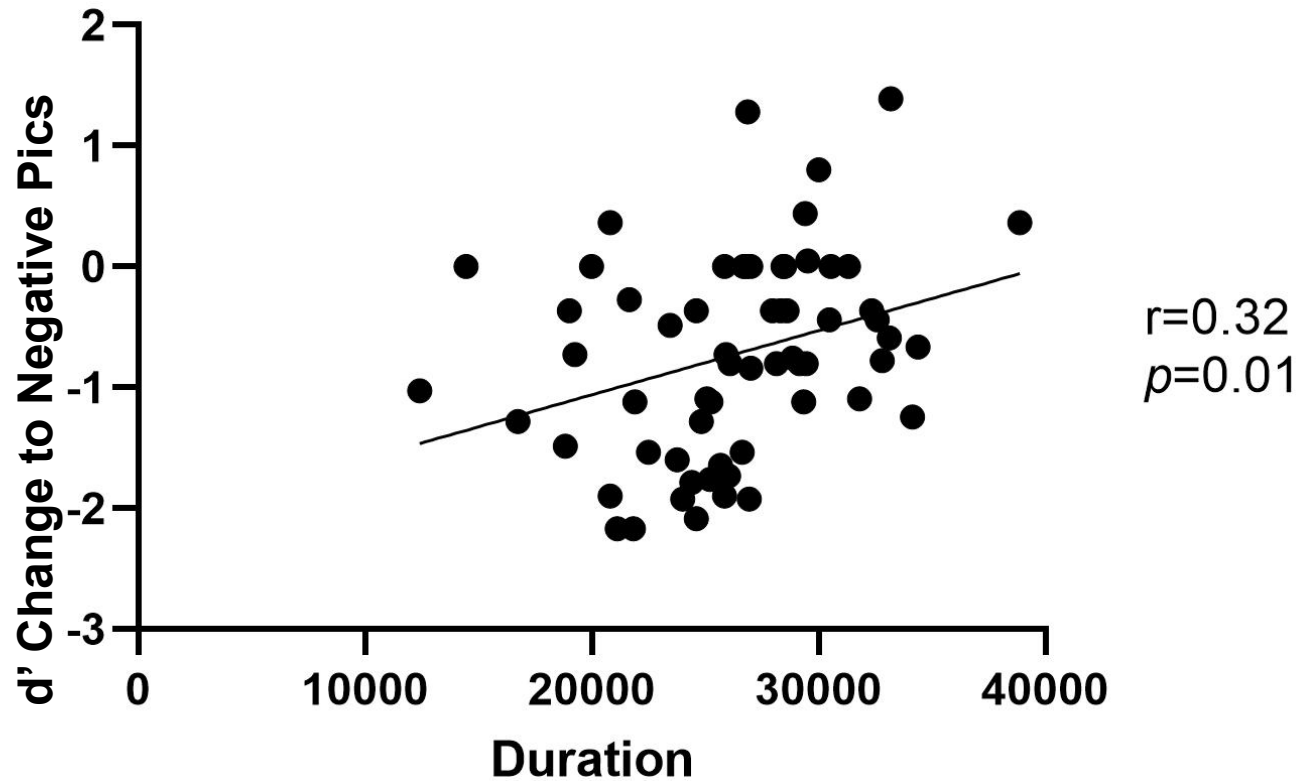


negative

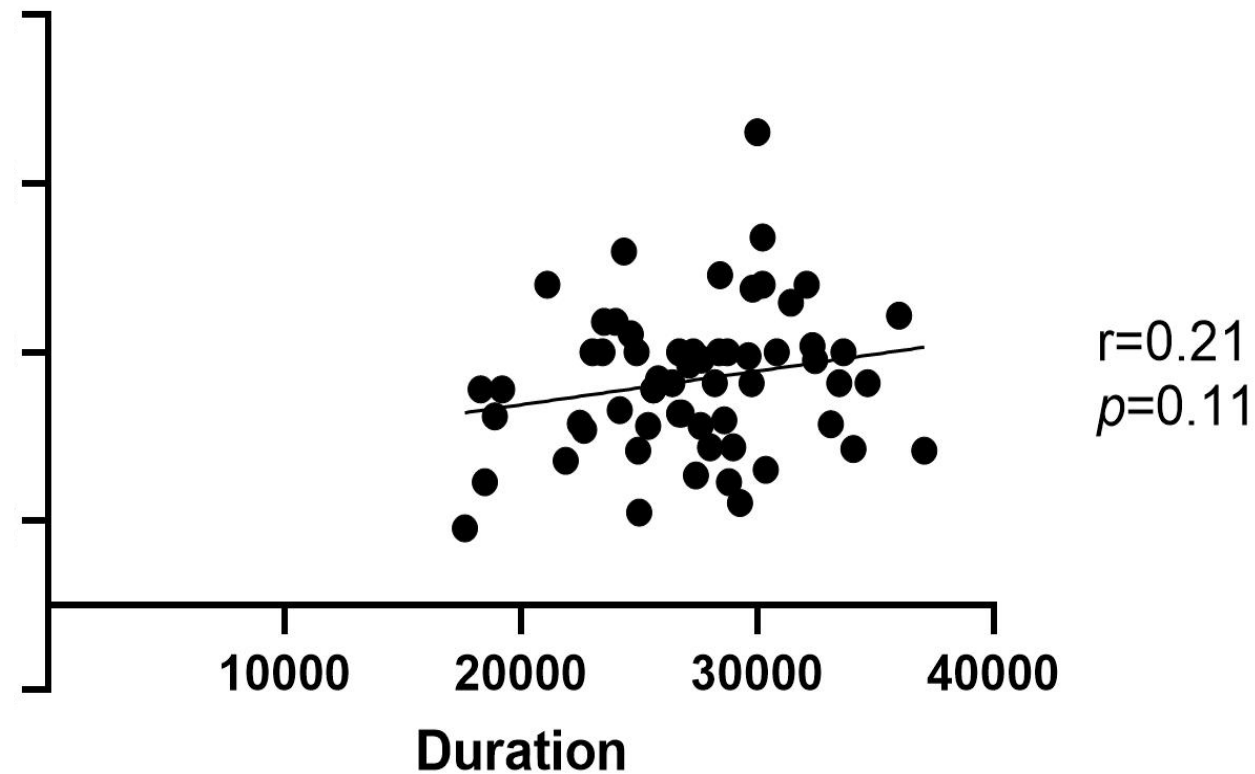


Longer time spent in bed helps with memory when hormones are low

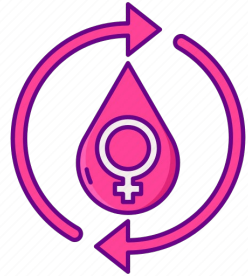
early-follicular



mid-luteal



Conclusion



- ♀ Sex hormones → Better sleep-dependent emotional memory consolidation
- 🕒 When hormones are low, time spent in bed helps with memory
- ❓ EEG studies are needed to reveal the role of sleep features (spindles and SOs) in emotional memory consolidation across menstrual cycle.

Acknowledgments

Meet me at poster board **085**

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