

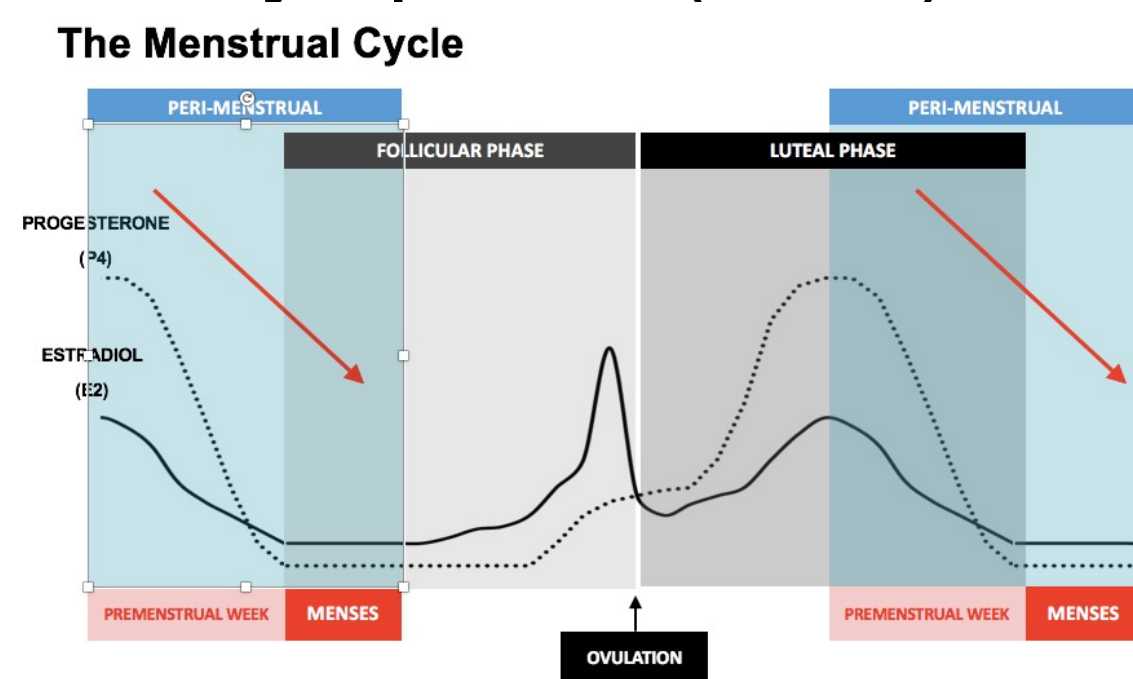
# Sensitivity to Estrogen Withdrawal as a Mechanism of Premenstrual Exacerbation of Mood & Anxiety Symptoms

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## Introduction

- ~60% of depressed females experience premenstrual exacerbation of symptoms (PME)<sup>1</sup>



- Perimenstrual estrogen (E2) withdrawal** may be a **depression-specific** mechanism<sup>2</sup>
- Later onset and offset for increased depression symptoms in PMDD, PME of suicide
  - In contrast to cardinal PMDD symptom of irritability, likely driven by P4 surges
- PME of depression prevented by luteal/perimenstrual E2 supplementation (not P4)<sup>3</sup>

### Current Study:

- Examine PME of depressive disorders, with **novel dried urine method for daily hormones**
- H1: Perimenstrual increase of depression symptoms
  - in contrast to periovulatory (highest E2)
- H2: E2 decrease → increased depression symptoms

## Methods

### Sample:

- N=42 menstruating people with depressive disorder diagnosis
- Age M = 26.64 (SD = 7.84), range 18-45
- 62% White, 87% cisgender, 56% LBQ+ sexual orient
- From larger study recruiting for elevated borderline personality disorder features
  - Not recruited for perceived effects of the menstrual cycle

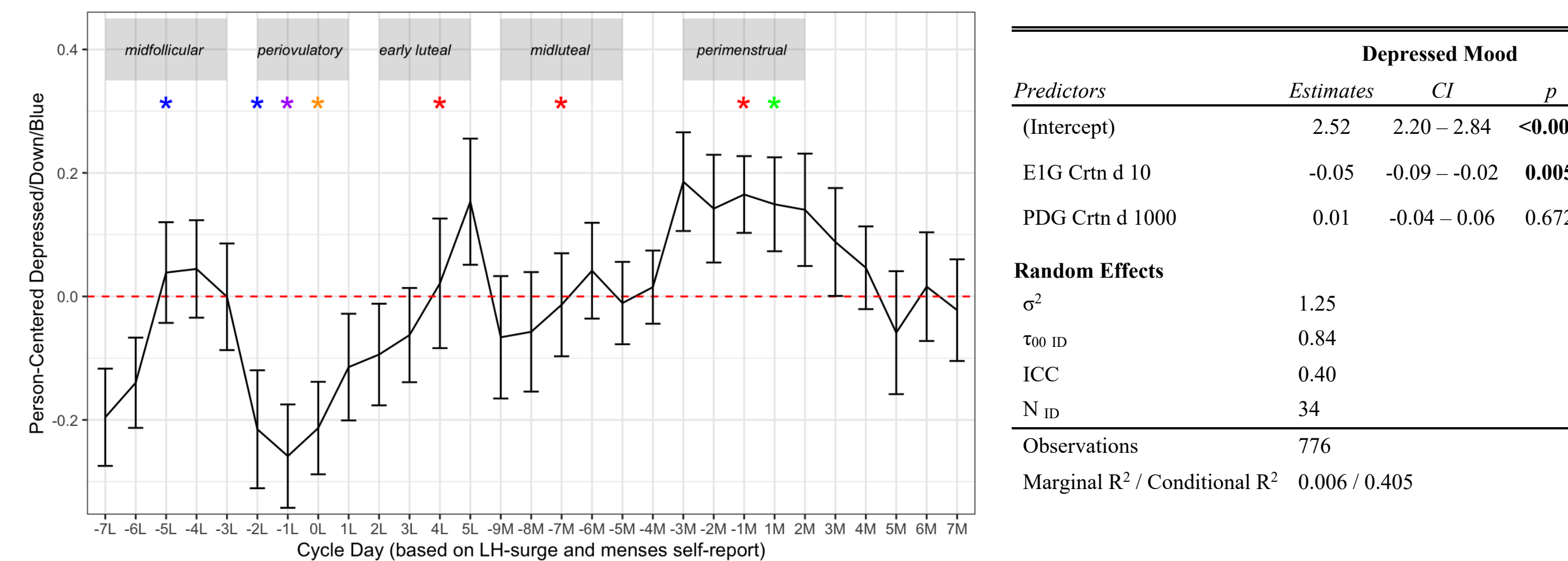
**Diagnoses:** SCID 5 interview by clinical psychologist

### Daily Measures:

- Symptoms** (2 cycles): **DRSP** (PMDD measure) and additional items adapted from trait measures
- Urinary hormones** (1 cycle), dried urine strips
  - E2 and progesterone (P4) metabolites
  - Adjusted for creatinine
  - Performs better than salivary or serum, especially for E2
- LH testing for all cycles to confirm ovulation

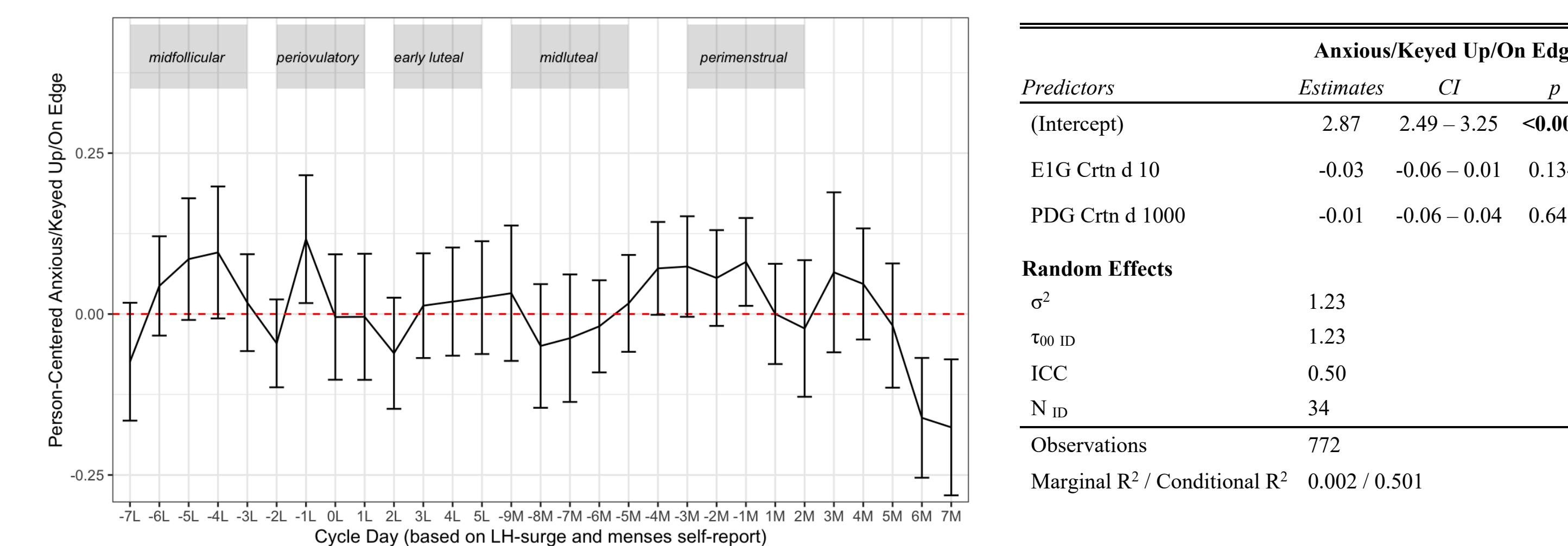
## Depressed Mood:

- Perimenstrual peak** (low/falling E2)
- Lowest in periovulatory phase (high E2)
- Negatively associated with E2**, not P4



## Anxious/Keyed Up/On Edge:

- No significant differences between cycle phases
- No sig hormone effects, possible trend for E2

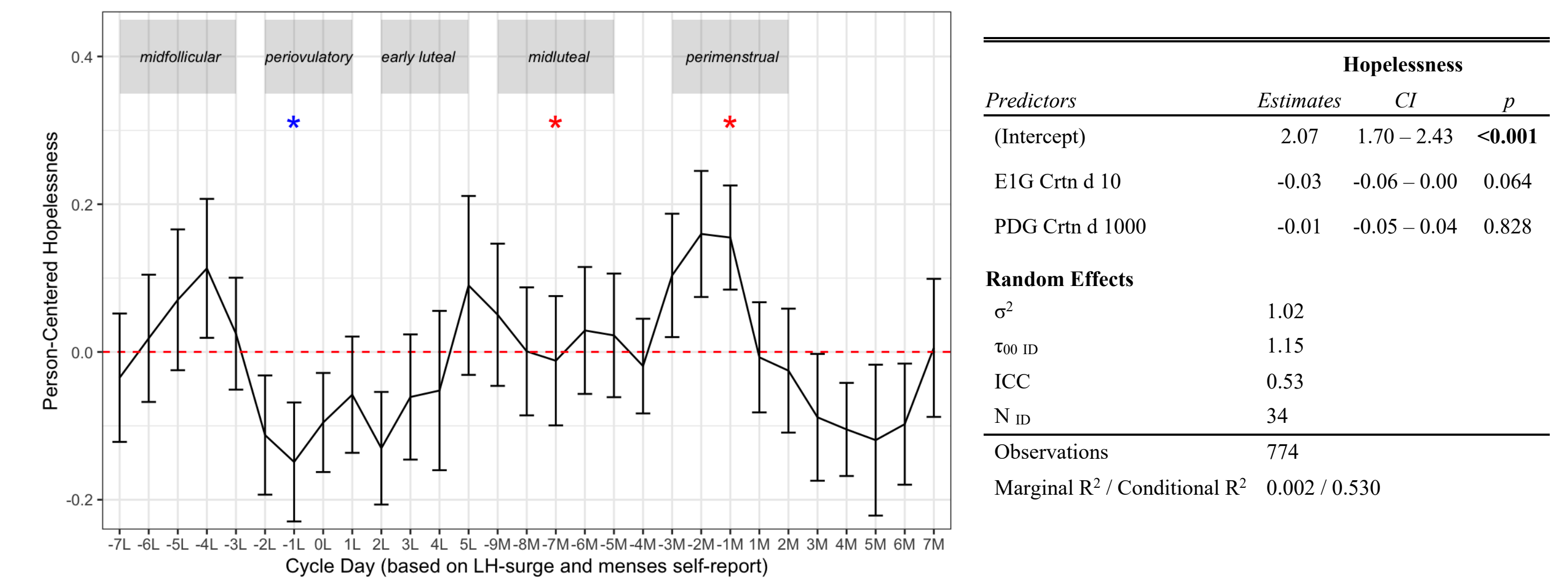


**Note:** \* = sig different from perimenstrual; \* = sig different from periovulatory; \* = sig different from early luteal; \* = sig different from midluteal; \* = sig different from midfollicular

## Results

### Hopelessness:

- Perimenstrual peak** (low/falling E2)
- Lowest in periovulatory phase (high E2)
- Trend for E2 effect** (not P4)



## Summary:

**H1:** As hypothesized, **significant perimenstrual worsening of depression symptoms** in people with current depression

- In contrast to luteally-bound symptoms typical for PMDD

**H2:** As hypothesized, **decreases in E2 predicted worsening depressed mood**

- Trend for hopelessness
- No effects of P4
- No effects of cycle or hormones on anxiety symptoms, may be specific to depressed mood

## Discussion

- Adds to growing evidence for an **E2-specific mechanism underlying PME of depression**
- Clinical implications:** need to assess menstrual cycle effects in people with depression
- Research implications:** need for further work on hormone-specific mechanisms across PMDD/PME
  - Extend to pubertal, perinatal, (peri)menopausal transitions: could sensitivity to E2 change be common risk factor?
- Continuing to collect data to analyze in larger sample
- Next steps: idiographic analyses to assess individual and possible subgroup effects, lagged hormones