

## INTRODUCTION

17.3 million adults in the United States have Depression.<sup>1</sup>

Researchers have demonstrated a link between depression and heart rate variability (HRV).<sup>2</sup>

More recently, researchers discovered that low HRV is associated with increases in depressive symptoms, suggesting that low HRV may be a risk factor for manifesting depression.<sup>3</sup>

**Purpose:** To examine the effectiveness of casual videogames (CVGs) on HRV and depressive symptoms.

## MATERIALS & METHODS

### Inclusion:

- ≥ 18 years old
- English speaking
- ≥ 5 on PHQ-9

### Randomized Control Design

- **Experimental:** CVGs 3 times/wk for 30 min (each session) for 1-month
  - Choice between 3 videogames (Bejeweled, Peggle, or Bookworm Adventures)
- **Control:** Business as usual (No CVG play)

### Assessments:

- HRV (SDNN) & PHQ-9

## HRV MEASURE (EAR CLIP)



## RESULTS

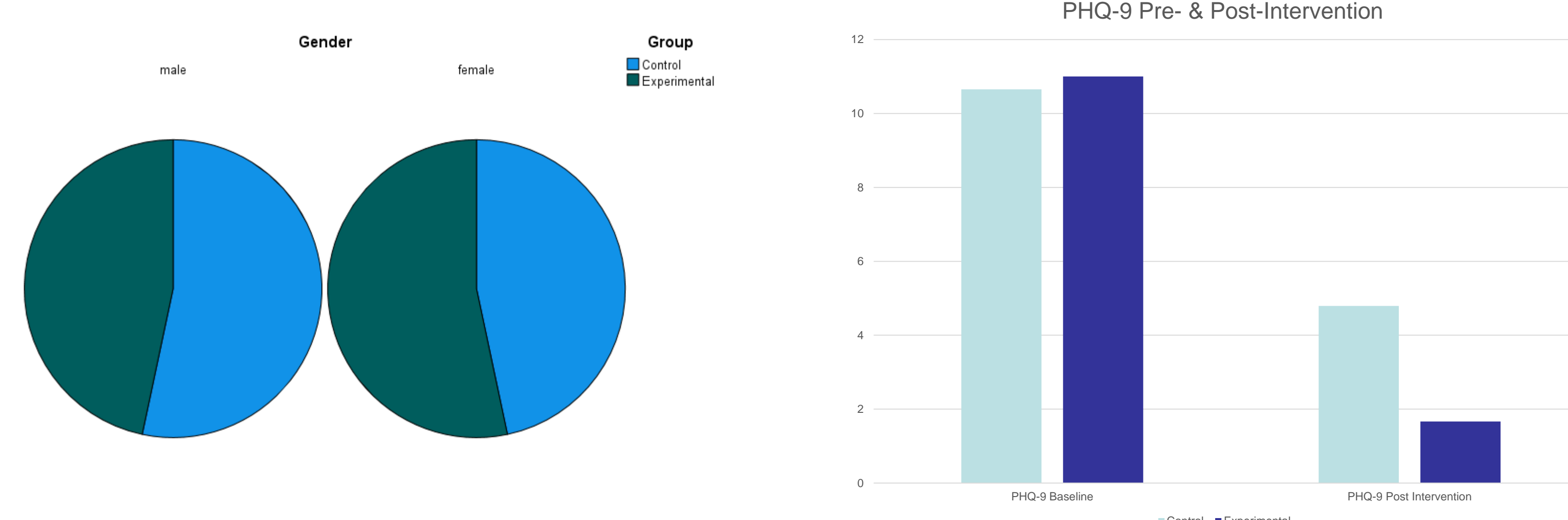
This study included 59 participants.

**Experimental Group:** Thirty participants aged  $29.27 \pm 11.22$

53.33% ( $n = 16$ ) female and 70% ( $n = 21$ ) European American

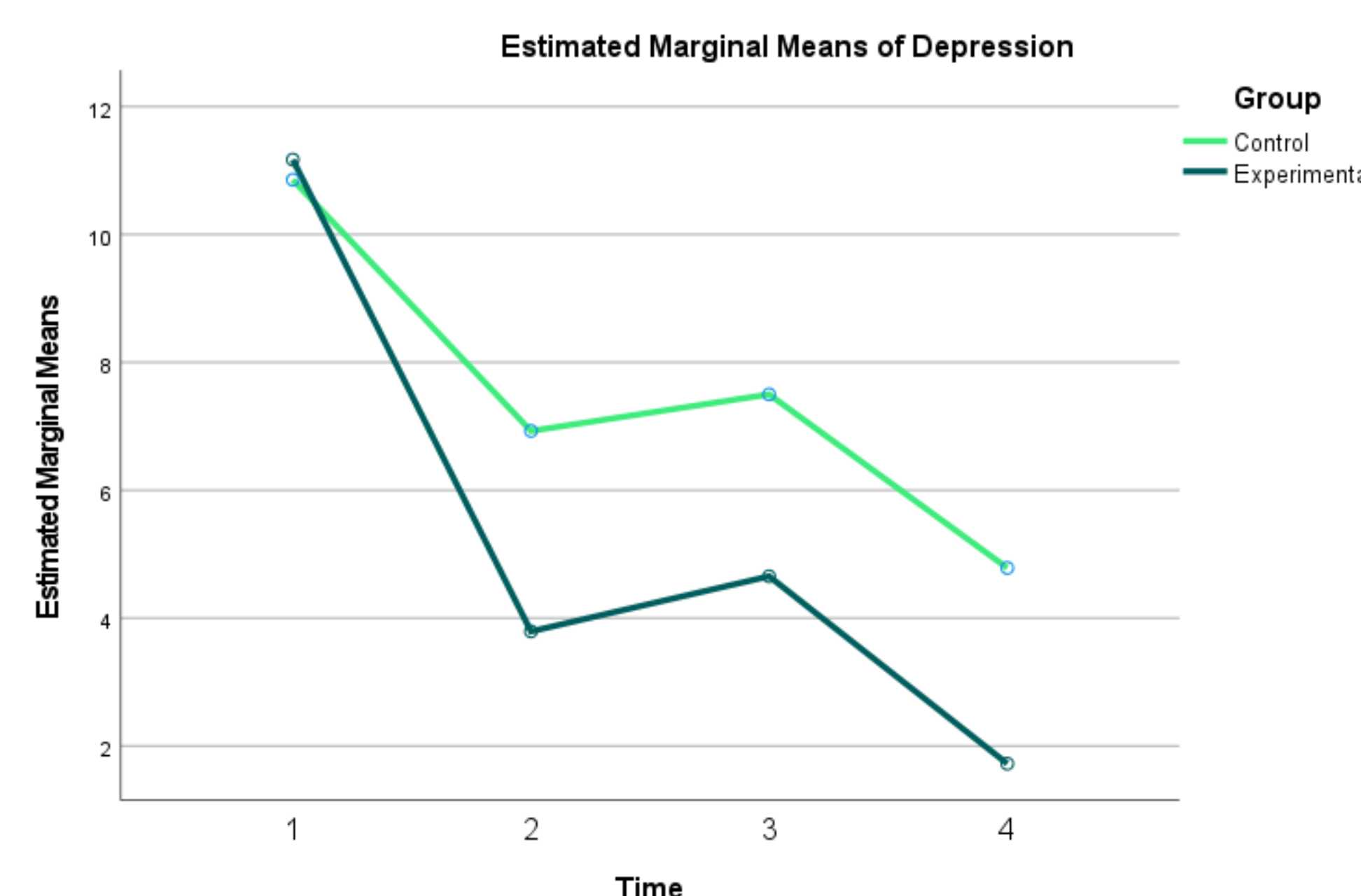
**Control Group:** Twenty-nine participants aged  $30.75 \pm 14.63$

51.72% ( $n = 15$ ) female, 65.52% ( $n = 19$ ) European American

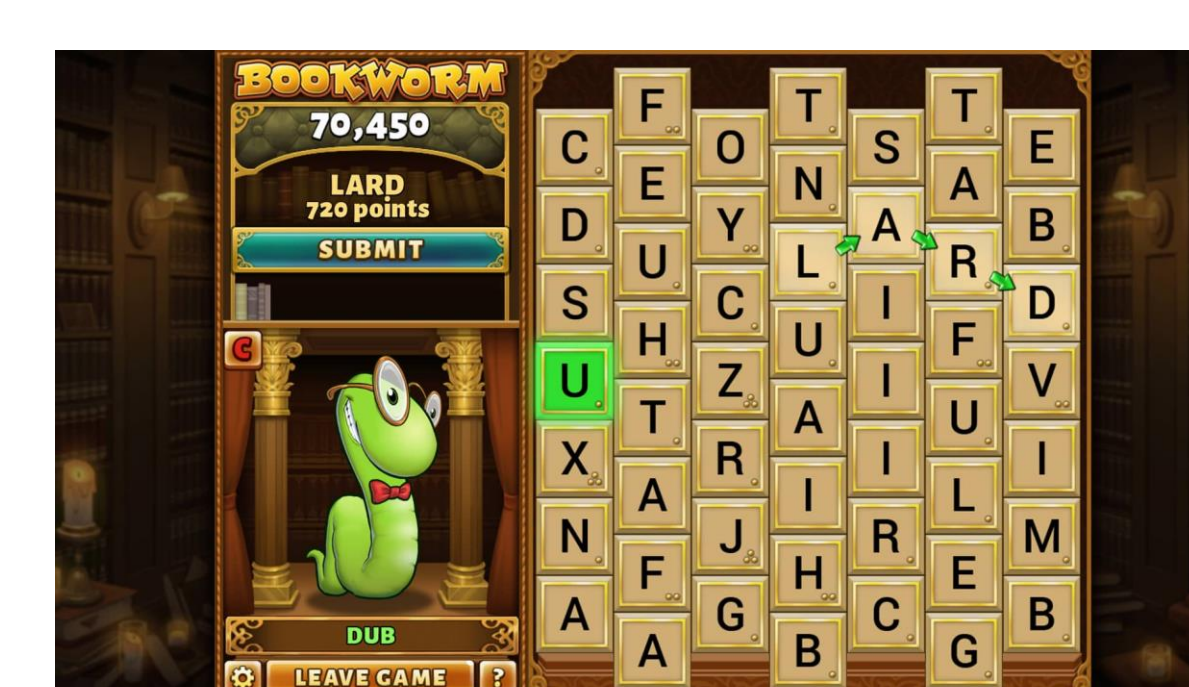
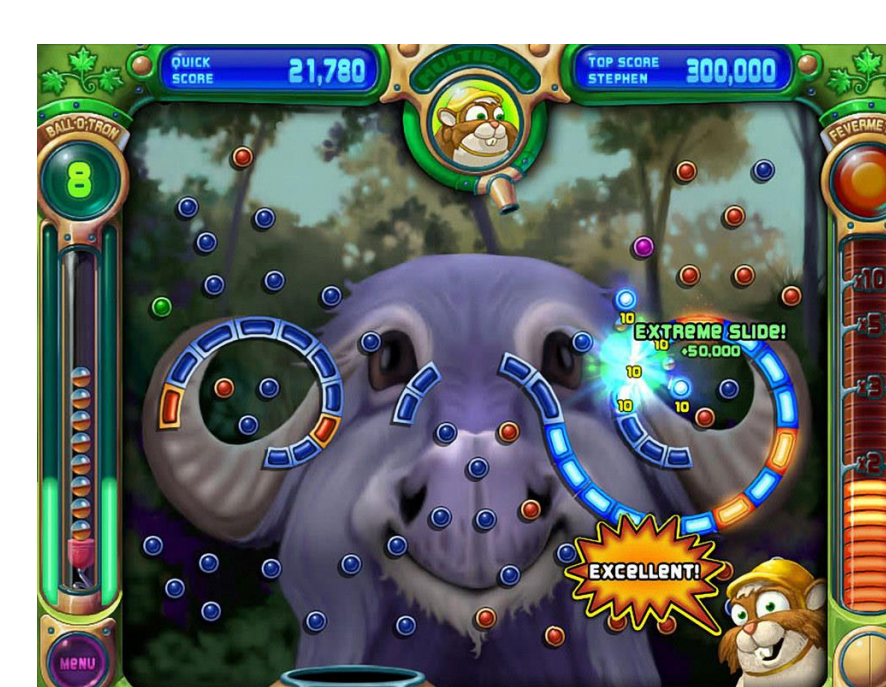
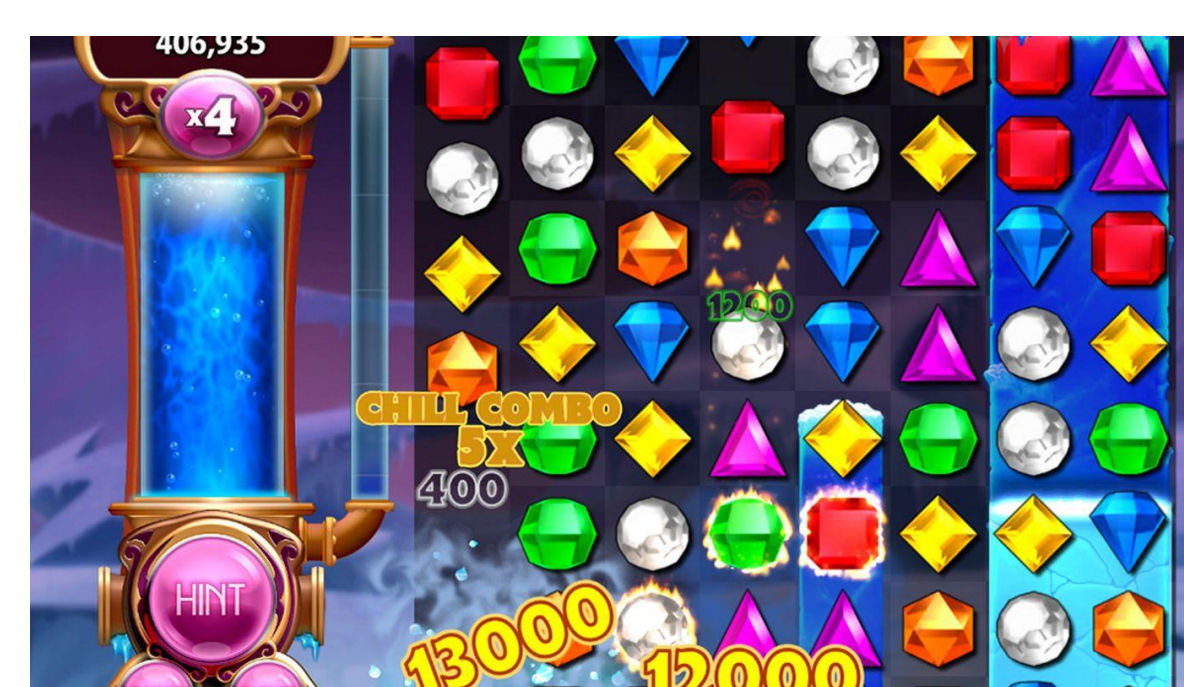


A repeated-measures ANOVA demonstrated a significant interaction of group by time for depression scores,  $F(2.21, 125.87) = 3.98, p = 0.018$ .

A repeated-measures ANOVA demonstrated no significant interaction of group by time for SDNN,  $F(1.80, 98.95) = 1.00, p = 0.364$ .



## CASUAL VIDEOGAMES



## DISCUSSION

The study results were significant, indicating that prescribed CVG play reduced participants depression symptoms, as evidenced by the PHQ-9 scores.

Participants prescribed CVG play at home had a significant decrease in depressive symptoms compared to the control group over time.

Although there was a significant interaction of group by time for depressive symptoms, there was no significant interaction for SDNN.

**Conclusion:** The prescription of fun activities, such as playing CVGs, may help to reduce symptoms of depression and should be further investigated to maximize health outcomes.

## LIMITATIONS

There may have been technological barriers due to participants' limited experience with computers and videogame play.

Potential that participants incorrectly self-reported their symptom severity on psychological assessments and the recorded time spent playing the CVG at home.

There is limited research on the specific prescribed frequency and duration of gameplay to significantly improve HRV measures using CVGs.

## REFERENCES

1. National Institute of Mental Health (2019). *Major Depression*. Retrieved from <https://www.nimh.nih.gov/health/statistics/major-depression.shtml>
2. Bassett, D. (2016). A literature review of heart rate variability in depressive and bipolar disorders. *Australian & New Zealand Journal of Psychiatry*, 50(6), 511-519.
3. Huang, M., Shah, A., Su, S., Goldberg, J., Lampert, R. J., Levantsevych, O. M., ... & Vaccarino, V. (2018). Association of depressive symptoms and heart rate variability in Vietnam war-era twins: a longitudinal twin difference study. *JAMA psychiatry*, 75(7), 705-712.