

# The Relationship of E1G Variability and Daily Reports of Severity of Problems Between Female Adolescents with High and Low Suicide Risk Profiles

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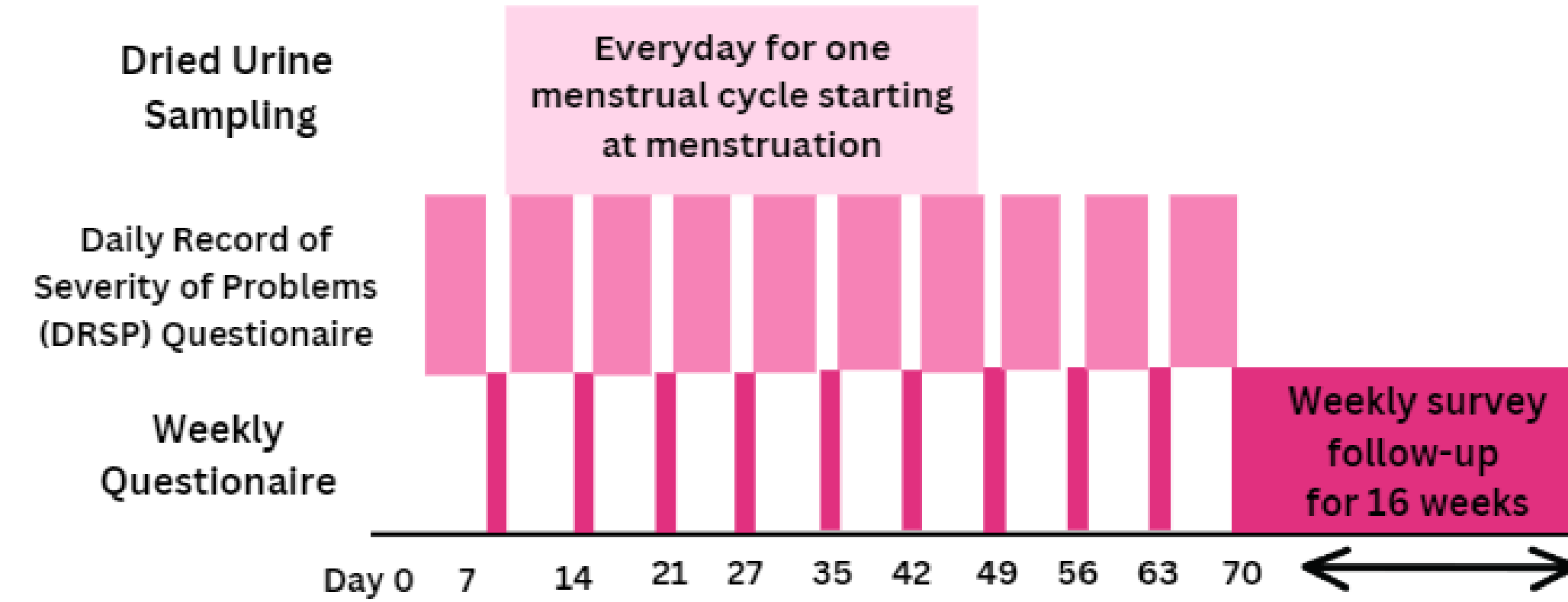
## Background

Female adolescents are at a twofold risk of experiencing suicidal thoughts and behaviors (STBs) compared to their male peers<sup>1</sup>. The emergence of gender differences in suicidal behavior coincides with the pubertal onset<sup>2</sup> and begins the cyclic fluctuation of sex hormones. Adults assigned female at birth with greater sensitivity to hormones flux have shown increased vulnerability to reproductive mood disorders<sup>3</sup>. Given adolescent's vulnerability to affective disorders, it is important to investigate the effect of sex hormones on mood in that age group. To improve women's mental health care research should investigate the effect of sex hormones on the development of mood disorders.

## Objective

This study investigated the relationship between E1G variability throughout the menstrual cycle and the mood symptoms in adolescents assigned female sex at birth at a high or low risk for suicide.

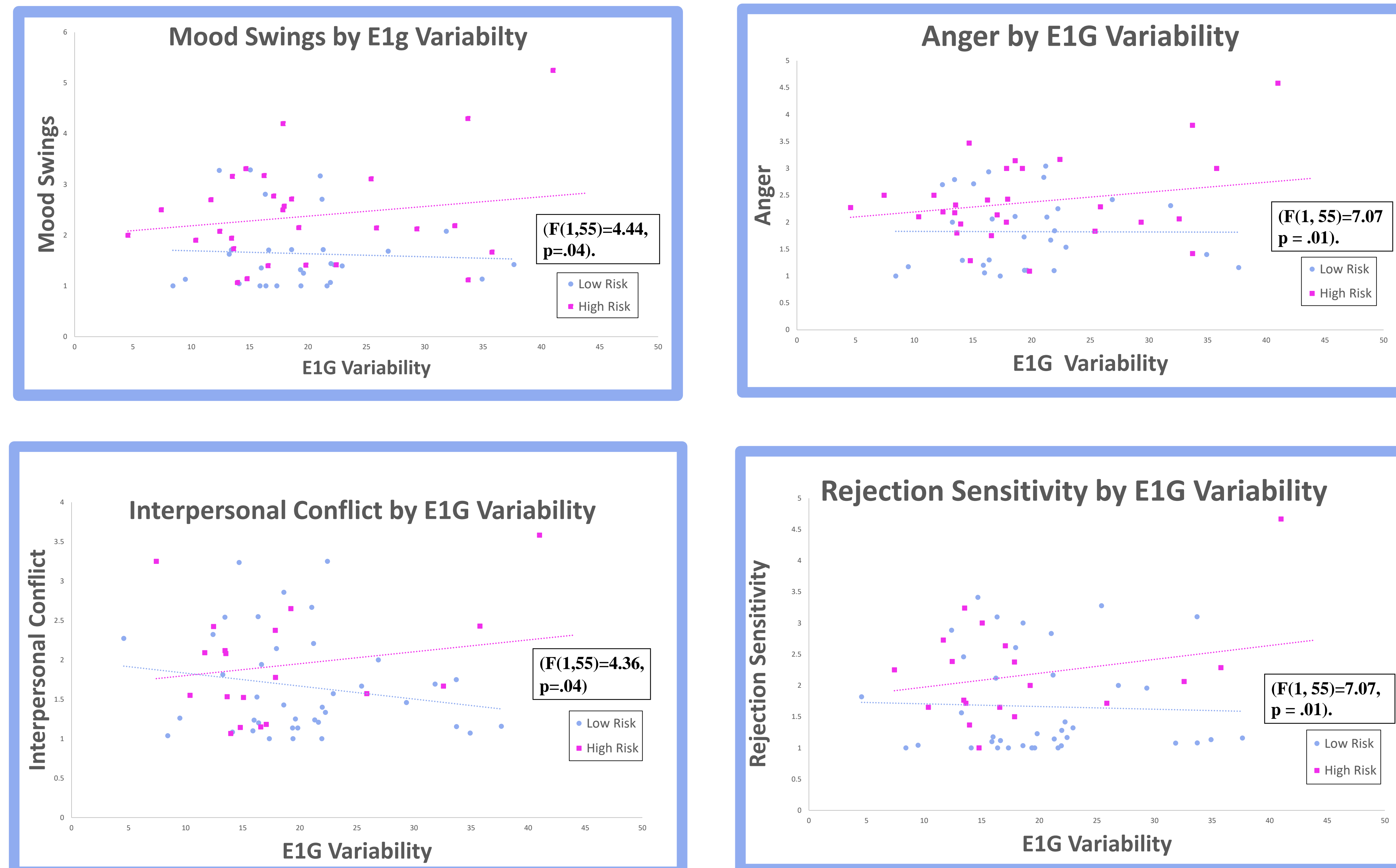
## Methods



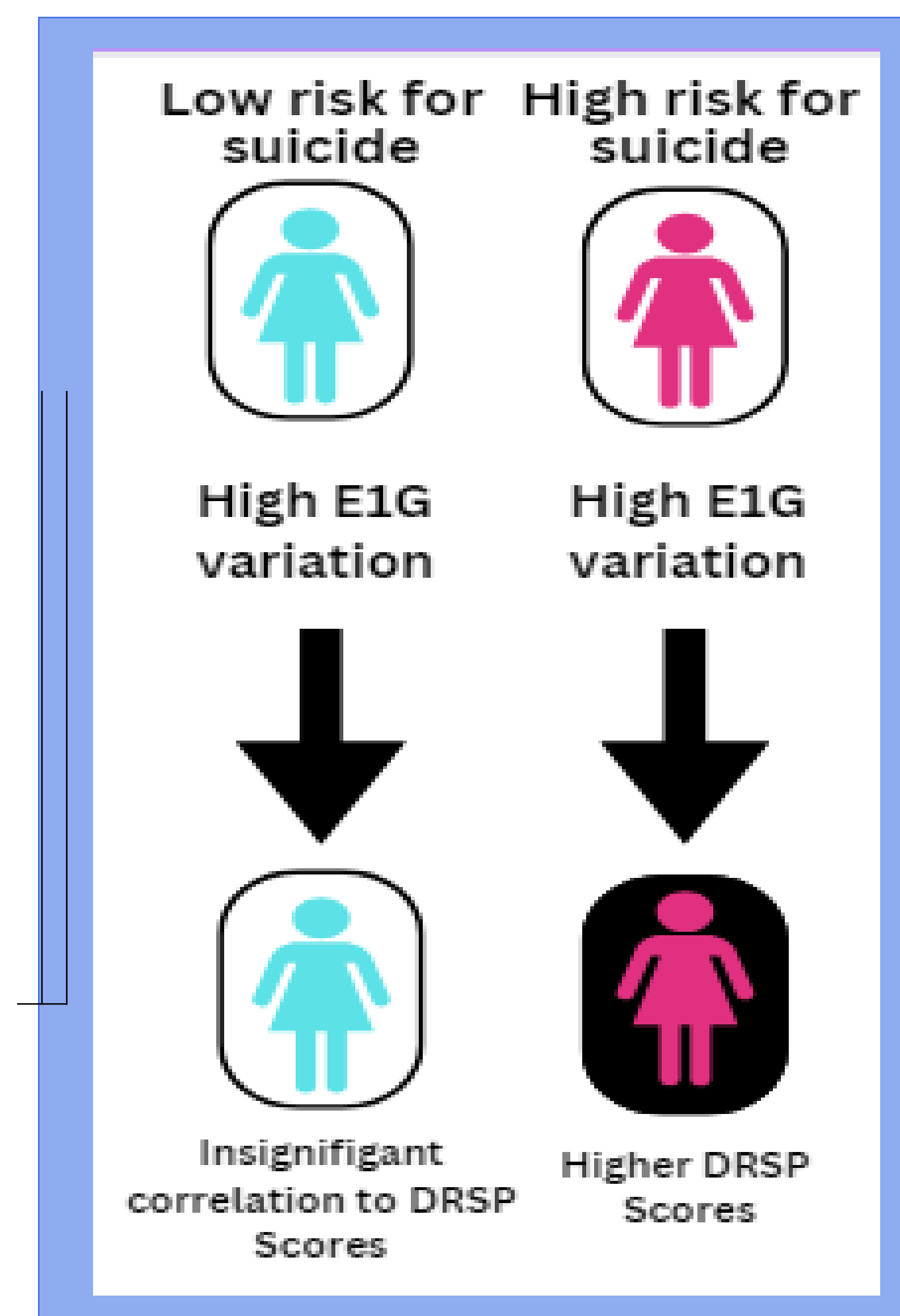
**Operationalizing E1G variability:** E1G levels were taken and measured from urine samples. The standard deviation of each participant's E1G levels to index variability.

**Operationalizing High and Low Risk:** High risk was designated as a Mood and Feelings Questionnaire (MFQ) score greater than or equal to 27 or a Suicidal Ideation Questionnaire (SIQ) score greater than or equal to 23.

## Results



Female adolescents at high risk for suicide displayed a stronger relationship between E1G variability and DRSP measures.



## Conclusion

Results show that splitting groups in terms of risk level shows significant differences in E1G variability vs. affective symptoms. In the high-risk group **anger** ( $F(1,31)=12.35, p=.001$ ), **mood swings** ( $F(1,31)=10.21, p=.003$ ), **interpersonal conflict** ( $F(1,31)=10.21, p=.003$ ), being **overwhelmed** ( $F(1,31)=5.92, p=.02$ ), **depression** ( $F(1,31)=5.54, p=.03$ ), **rejection sensitivity** ( $F(1,31)=8.48, p=.007$ ) all had a significant relationship to E1G variability. When moderators were added to the high-risk group (depression value (MFQ) and Suicidality value (SIQ)) showed an even more significant relationship between E1G and anger ( $F(1,31)=14.02, p=.0007$ )) mood swings ( $F(1,31)=11.03, p=.002$  and depression ( $F(1,31)=5.86, p=.02$ )).

In the low-risk group, E1G variability was found to have a significant relationship with **mood swings** ( $F(1,20)=10.05, p=.004$ ) in addition to a weaker relationship with the moderators ( $F(1,20)=7.02, p=.02$ ). E1G variability and reports of feeling **overwhelmed** ( $F(1,20)=5.04, p=.04$ ) and feeling **hopeless** ( $F(1,20)=1.52, p=.022$ ) were significant but did not retain significance with the addition of the SIQ moderator.

## Future Directions

- The high-risk group suggests a stronger relationship between DRSP scores and E1G variability with the addition of the two moderators supporting that participants experiencing the greatest suicide risk may be more impacted by E1G fluctuations.
- Investigating the interplay between sex hormones and mood could help explain the biological underpinnings on how suicidal ideations arise in adolescents
- Hormone-tracking methods could be studied as a diagnostic tool when assessing the severity of a patient's suicidal behaviors or diagnosing reproductive mood disorders such as PMDD
- Further studies should investigate the effect of hormonal birth control on E1G variability and DRSP scores

## Acknowledgments

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**References:** 1. Miranda-Mendizabal et al., *International journal of public health* (2019) 2. Hankin et al., *Journal of Abnormal Psychology* (2015), 3. Andersen et al., *Psychological Medicine* (2023)