**Peru 5 & 6 Digital Stress Models**

**Hypothesis**: Baseline mental health vulnerabilities at time 1 predict increases in digital stress at time 2 among adolescents.

**Models:**  Using wide data (include individual-level variability?)

**Model 1: DSS\_T2 ~ PROMIS\_T1**

* Rationale: Identify if PROMIS at time 1 predicts digital stress at time 2. Basic model identifying association between the two variables.
* PROMIS = IV

**Model 2: DSS\_T2 ~ PROMIS\_T1 + DSS\_T1**

* Rationale: Identify if PROMIS at time 1 and digital stress at time 1 predict digital stress at time 2. Having two IVs may better explain DSS at time 2.
* PROMIS & DSS = IV

**Model 3: DSS\_T2 ~ PROMIS\_T1 + DSS\_T1 + Gender + Grade**

* Rationale: Identify if PROMIS at time 1 and digital stress at time 1 predict digital stress at time 2. Add gender and grade to see if they will improve the model fit to the data, but they are not the main variables we are interested in.
* PROMIS = IV
* DSS\_T1 = covariate?
* Gender & Grade = covariates

**Model 4: DSS\_T2 ~ PROMIS\_T1 \* Gender + DSS\_T1 + Grade**

* Rationale: Identify if an interaction between PROMIS at time 1 and gender better predict digital stress at time 2. PROMIS intensity may be different based on gender. Add digital stress at time 1 and grade as covariates to see if they will improve the model fit to the data, but again they are not the main variables of interest here.
* PROMIS & Gender = IV
* DSS\_T1 = covariate
* Grade = covariates

**Model 5: DSS\_T2 ~ PROMIS\_T1 + PROMIS\_T2 + DSS\_T1**

* Rationale: Identify if the unique effect of PROMIS at time 1 and 2 together better predict digital stress at time 2. Add digital stress as a covariate to see if it improved the model fit.
* PROMIS = IV
* DSS = covariate

**Model 6: DSS ~ Grade \* Wave**

* Rationale: Identify if an interaction between grade and wave predicts digital stress. Students were in the same grade across the two waves, but there may be an effect of grade.
* Grade & Wave = IV

**Models:**  Using long data, mixed-effects models

**Model 1: DSS\_T2 ~ PROMIS\_T1 \* Wave + (subject | ID)**

* Rationale: Identify if an interaction between PROMIS at time 1 and wave predict digital stress at time 2 while accounting for individual-level variability. PROMIS intensity may be different based on wave.
* PROMIS & Wave = IV

**Model 2: DSS\_T2 ~ Gender \* Wave + (subject | ID)**

* Rationale: Identify if an interaction between gender and wave predicts digital stress at time 2 while accounting for individual-level variability. The effects of gender may be different based on wave.
* Gender & Wave = IV

From Lucía 1:1

1. ~~First calculate t-scores~~
2. ~~Reassign t1 and t2, to clinical and non clinical~~
3. ~~create a column with promis\_anxiety\_ranking\_t1 and promis\_anxiety\_ranking\_t2~~
4. ~~Artificially duplicate the values for both rows per participant -- to make this variable a~~**~~time-invariant~~**~~covariate, this is a trick, because otherwise the models would NOT run (you would need to run cross lagged panels)~~
5. ~~Build the models using mixed effects and accounting for random intercept by participant (1/participant\_id)~~

dss ~ wave \* promis\_anxiety\_ranking\_t1 + sex + age + (1/participant\_id)

dss ~ anx ranking baseline \* wave + covariates + (1/subject\_id)

dss ~ anx ranking baseline + wave + covariates + (1/subject\_id)