PSY 3307

Mixed Design ANOVA

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Mixed Design ANOVA

- this is the combination of a between-subjects ANOVA and within-subjects design ANOVA
  - combination of repeated measures and one-way ANOVA
  - this is referred to as a mixed design ANOVA
    - do not mixed this up with mixed-effect modeling (that is fancy statistics)
- we will only work with one repeated measures outcome and one between-subjects variable
  - you can have multiple repeated measures outcomes as well as multiple between-subjects variables

Assumptions

- homogeneity of variance (equal variance)
    - between-subjects concern
- sphericity
    - within-subjects concern
    - level of dependence between conditions/time points is roughly equal
    - variances across conditions/time points are equal (not statistically significant)
    - only becomes a problem when we have three conditions/time points
- normality in DV
- outliers

Sphericity

- Mauchly's test
  - the within-subjects "equivalent" to the Levene's test
  - tests to see if the variances between conditions/time points are equal
  - if the test is significant, the assumption of sphericity is not met and there are differences in variances among the conditions/time points
- corrections can be made if sphericity is not met (when Mauchly's test is statistically significant)
  - this is by adjusting the degrees of freedom, but we won't get into this

Corrections for Sphericity Violations

- One adjustment is the **Greenhouse-Geisser estimate**, adjusts for the violation in repeated measures designs
    - however, has been stated that when the sphericity estimate is > .75, the correction is too conservation
- Another adjustment is the **Huynh-Feldt estimate**, which is recommended when the sphericity estimate is > than .75
- another option is to correct for the model by doing a **Multivariate Analysis of Variance** or MANOVA