

Batteries & Days

- Beverage Enrollment
 - Day(s): 0
- Pre Beverage Daily
 - Day(s): 1-6
- Beverage Week 1
 - Day(s): 7
- Beverage Daily
 - Day(s): 8-13, 15-20
- Beverage Weekly
 - Day(s): 14, 21
- Beverage Final
 - Day(s): 22

Sample Report Requirements / Deliverables:

- Please generate a reproducible report using either Rquarto or Rmarkdown with text, tables, and plots (output to docx, PDF, or HTML) that:
 - Implements the longitudinal mixed-effects model for WHO-5 and Daily Feedback Pre Beverage vs During Beverage with full diagnostics.
 - In your write-up, specify the model family/link (e.g. linear or generalized linear or Gaussian vs. binomial), the fixed and random effects they chose, and your rationale for those choices.
 - Linear mixed-effect model with a random effect for participant ID, OR optimally, a ordinal mixed effect model
- Clear text description (or tables) and figures summarizing the fixed effects from the mixed-effects model and the single paired-t test.
- Use R and the lme4 (**or similar**) package for all mixed-effects modeling.
- For alcohol substitution, perform a two-sided paired t-test (or lmm or ordinal mixed model) comparing Day 14 vs. Day 21 week_alc_use; report t, degrees of freedom, p-value, and 95% confidence interval for the mean difference.

Important Notes/Details

- Measure of product efficacy, statistical significance, and expected change should be measured from Day 0-21
- No product use and experience questions are asked on Day 22.
- During “Beverage Daily” questions, if they said “No” they did not use the product yesterday, they were still asked the same questions that are in “Pre Beverage Daily”. We want to continue to compare responses of when the product was used vs not.
- For some participants, in the Week 1 and Weekly the “who_5” question will be asked 2x with 2 answers. This was due to a missing question after “who_5” causing this to repeat. For those that have 2 answers to “who_5”, only use the first one.

Weekly Assessments & Questions

1)

WHO

- who_1
- who_2
- who_3
- who_4
- who_5

Please [Click Here](#) to see how to score the WHO-5. A 10% difference indicates a significant change. We want to see if there was a significant change week over week and from Enrollment to Week 4.

Instructions reminder:

- **Longitudinal modeling:** Days 0, 7, 14, 21
- In addition to providing an answer if there was a statistically significant change, AND if that change met the WHO-5 10% difference threshold, provide a figure that shows the average change in WHO-5 score compared to a random sampling of 15 participants

Statistically significant changes need to be identified.

2)

Alcohol Use Questions

On days 14 and 21 the below question was asked.

- week_alc_use

This question asks how often the product was consumed instead of an alcoholic beverage in the past week. Was there a statistically significant change in people reporting using the product as a substitute for alcohol more on day 21 vs day 14?

Daily Feedback Pre Beverage vs During Beverage

3)

Alcohol use:

The below question is a Yes/No question. Asking participants if they consumed alcohol yesterday. We want to see

- Did alcohol consumption decrease as participants started to consume the infused beverage
- Was the change in alcohol reduction statistically significant

Instructions reminder:

- **Longitudinal modeling:**
 - Days 1,2,3,4,5,6,8,9,10,11,12,13,15,16,17,18,19,20 = when this question was asked
 - On days 0, 7, 14, and 21 = when this question **was not** asked
- In addition to providing an answer if there was a statistically significant change, provide a figure that showing the change in Predicted Probability (or something similar) of alcohol consumption on a daily basis over the course of the study.

Questions:

- daily_alc