

## Heritability Write-up

Make sure to answer each question listed under each of the six sections. Please include the question numbers; this is not meant to be in a full report format. Your answers must be your own and assignments with evidence of plagiarism will be given a 0. Additionally, points will be deducted if your answers are difficult to understand due to poor proofreading (watch out for run-on sentences, and a word processing software with spell checker is highly recommended). Your report must be uploaded to iLearn by Thursday, 08/20/2020 at 11:59 PM. Two attempts will be allowed so emailed attempts WILL NOT be accepted.

### Introduction (5 pts)

1. In your own words (not from Google or the slides), describe narrow-sense heritability (1 pt, 1 sentence).
2. Why is narrow-sense heritability (the slope) unlikely to be equal to 1? (1 pt, 1-2 sentences)
3. For three of the five graphs below do the following:
  - A. Specify the trait type (morphological, physiological or behavioral). (0.5 pts for each trait)
  - B. What are possible environmental factors that could affect these traits? (0.5 pts for each trait, 1 sentence per trait)

### Results (3 pts)

4. Using the provided figures, interpret the results for each of the three traits you specified in question #3 (what was the trend, if any, in the data; what was the estimated narrow sense-heritability; how strong is the relationship? (1 pt for each trait, 1-2 sentences for each trait)

### Discussion (7 pts)

5. How could we have improved the measurement of these traits (provide hypothetical examples for each trait you mention)? (1 pt per trait, 1-2 sentences)
6. Provide one possible reason why the  $R^2$  is low for many of these traits? (1 pt, 1-2 sentence).
7. Based on the data collected and the pool of individuals who answered the questionnaire, do you think this study would yield similar results if asked in a different country? Why? (1 pt, 1-2 sentences)
8. Based on these results and the lectures and reading, what kinds of traits (physiological, morphological, behavioral) generally have the highest heritability in humans and why? (2 pts, 1-2 sentences)

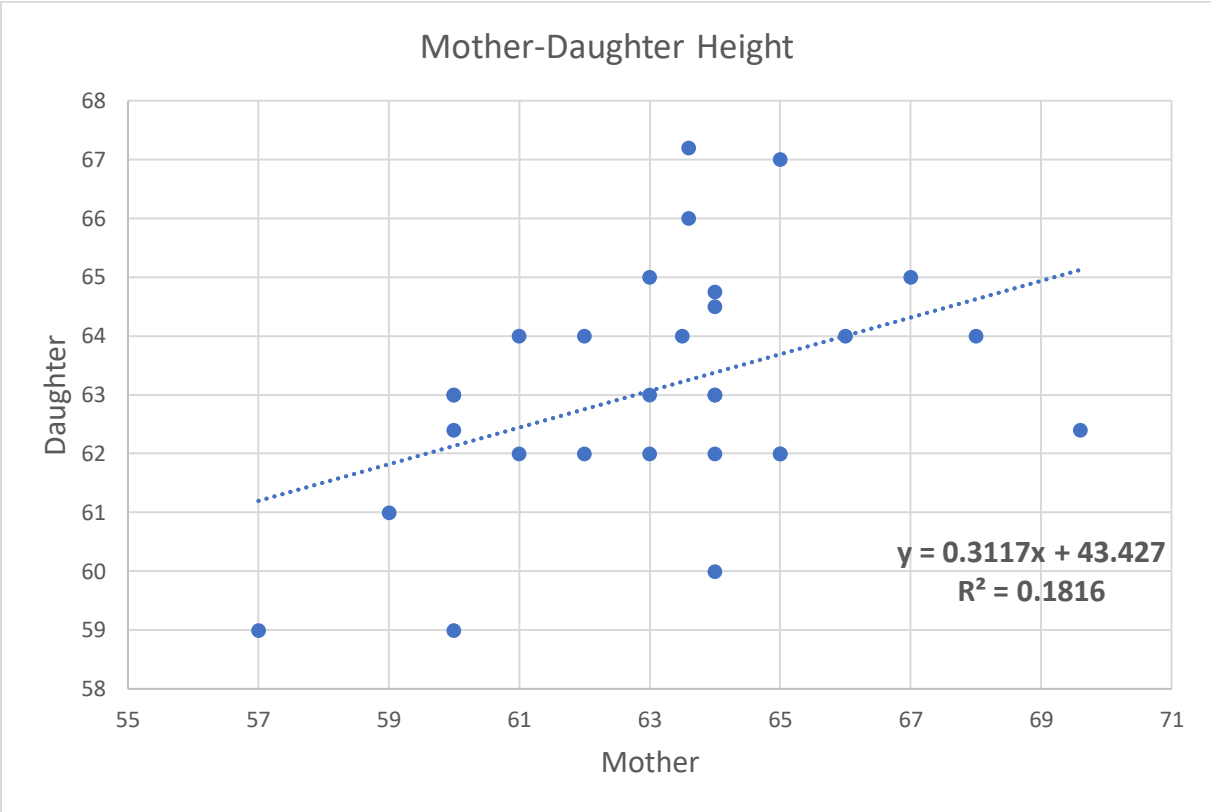


Figure 1. Mother-Daughter regression for height measured in inches.

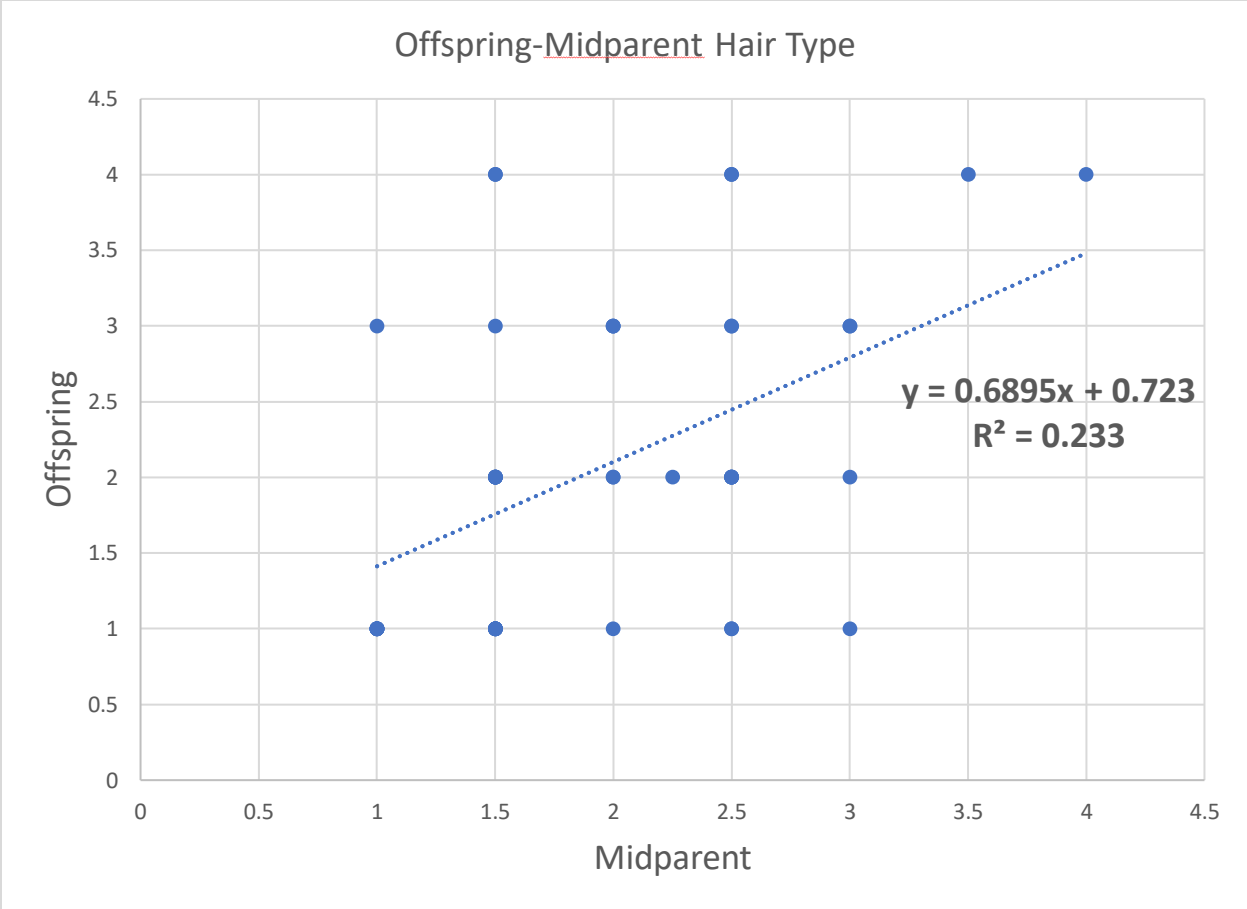


Figure 2. Offspring-Midparent regression for hair type.

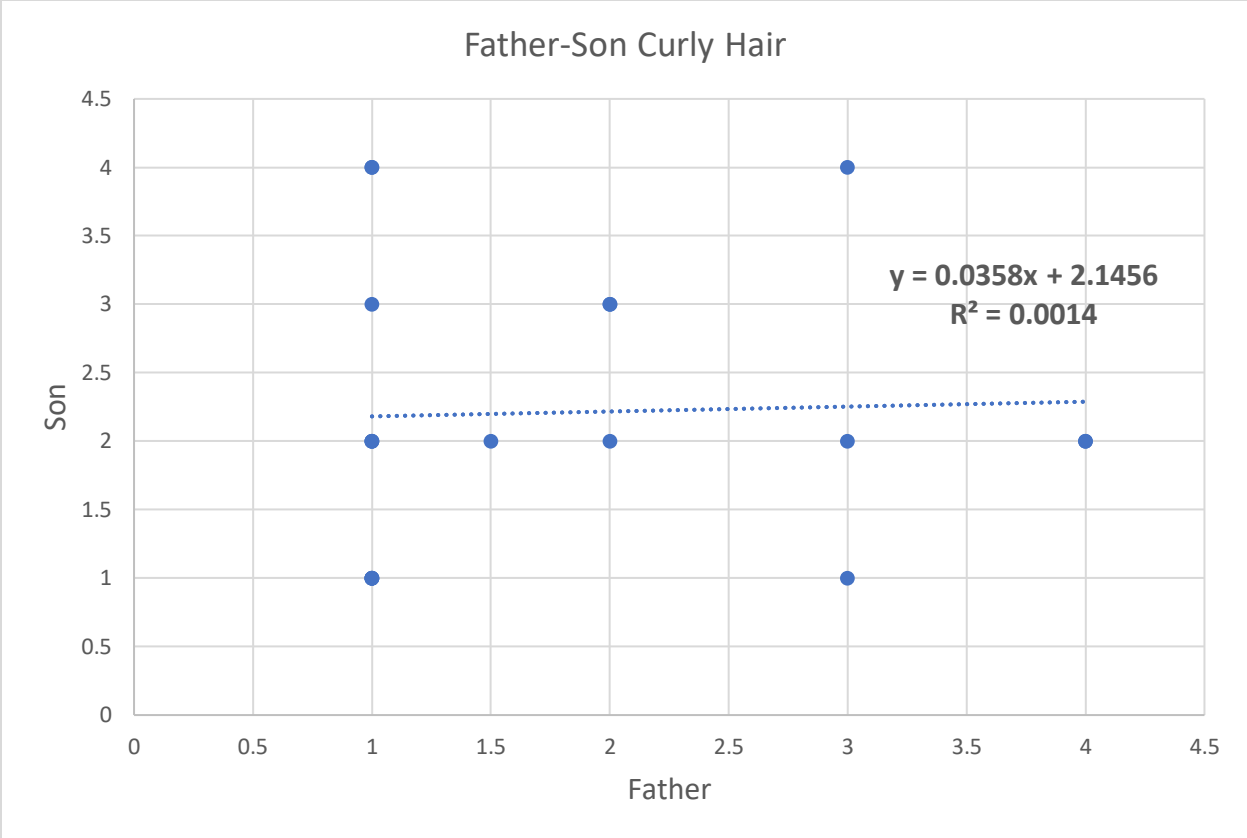


Figure 3. Father-son regression for hair type.

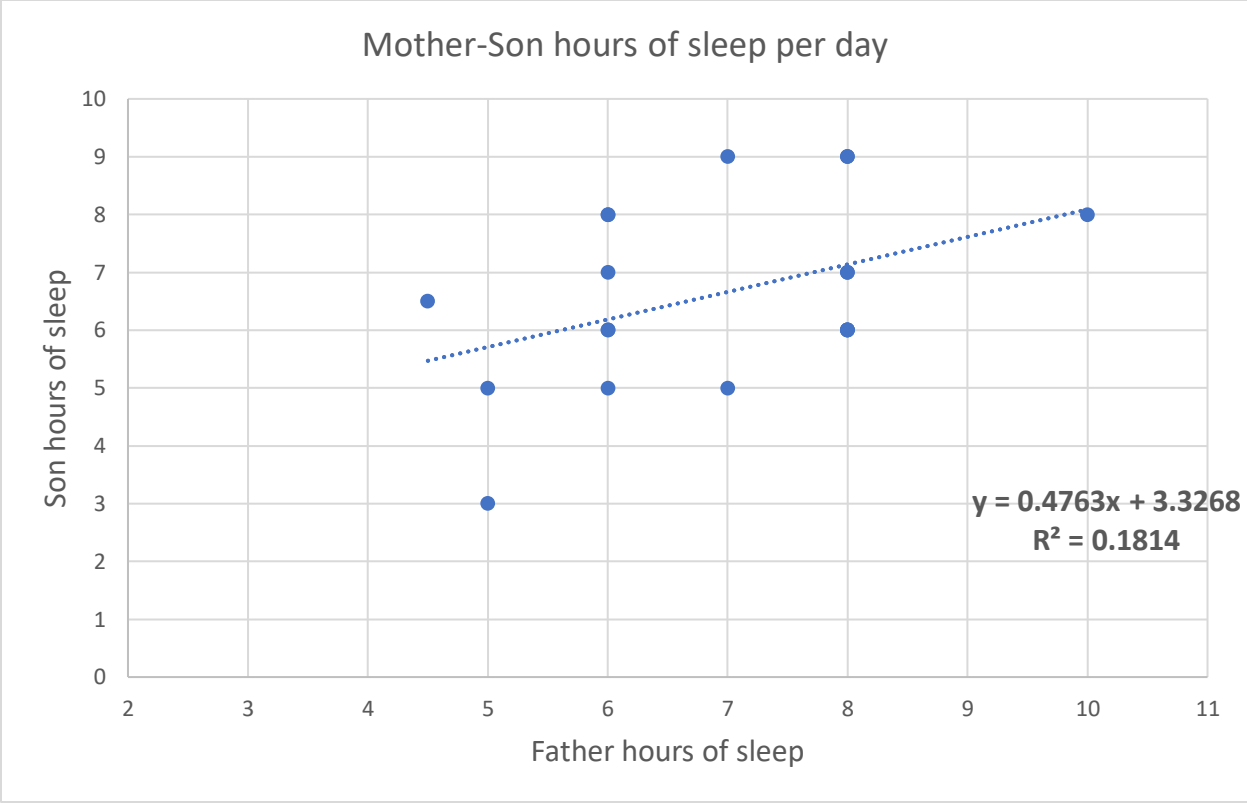


Figure 4. Mother-son regression for hours of sleep per day.

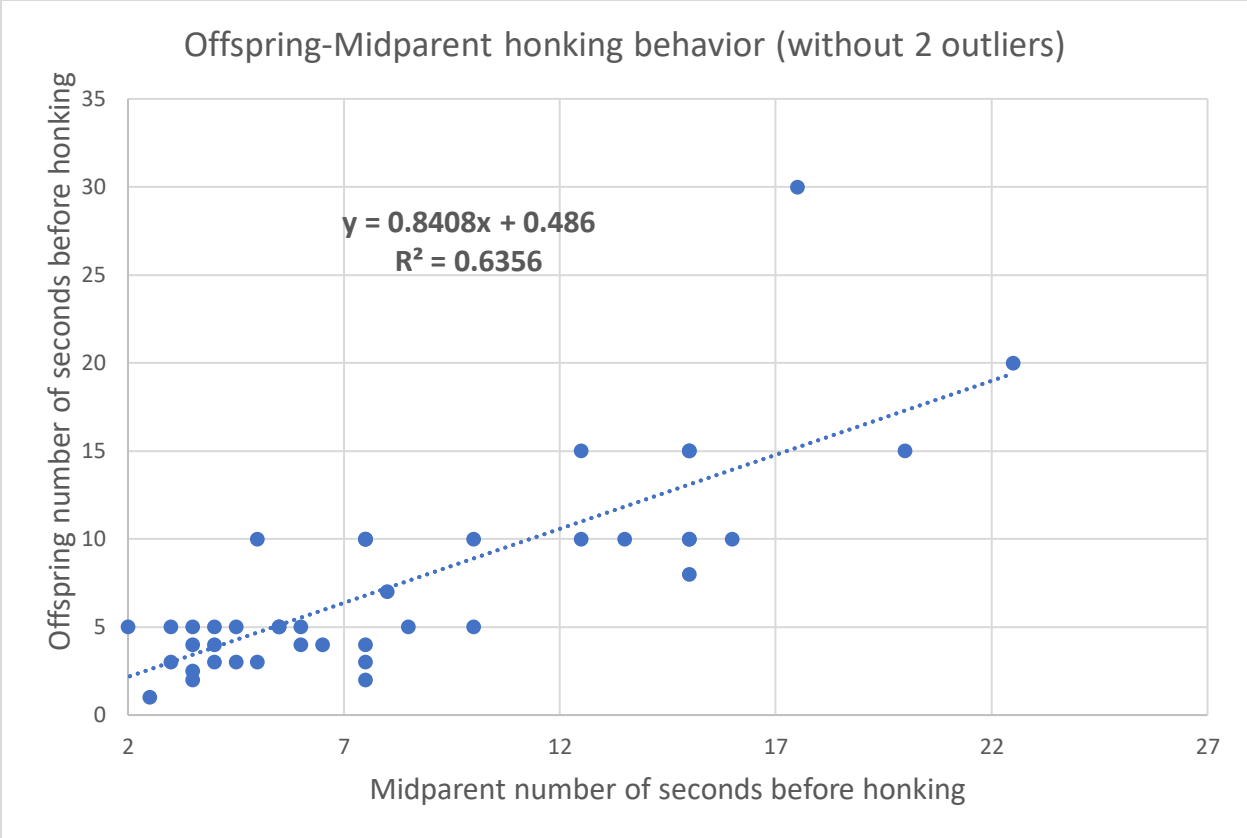


Figure 5. Offspring-midparent regression for honking behavior with two outliers removed.