Preregistration

Character displacement of bill ratio in three penguin species of the Palmer Archipelago

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Data collection	**Yes**, this project uses data that have already been collected and are publicly available. The data will be accessed through the palmerpenguins R package (Horst *et al.* 2020).
Hypothesis	Interspecific competition for prey should result in character displacement of trophic traits, like bill morphology.
Dependent variable	**Bill ratio**, defined as the ratio between bill depth and length.
Independent variable	**Species**, treated as a factor with three levels: Adelie, Chinstrap, and Gentoo.
Analyses	Pairwise T-tests (with a multiple testing correction) to test for significant differences in mean bill ratio among species.

Outliers and exclusions	We will not exclude any purely statistical outliers without confirming with the collectors of the data that those data represent an error or anomaly that should be excluded.

Sample size	Data exists on **344 penguins**, with roughly equal proportions of each species.

Other	Nothing else to preregister.

Study type	Finally. For record keeping purposes, please tell us the type of study you are pre-registering.

- Class project or assignment
- Experiment
- Survey
- **Observational/archival study**
- Other:

References

Horst, A.M., Hill, A.P. & Gorman, K.B. (2020). *palmerpenguins: Palmer archipelago (antarctica) penguin data*.