Preregistration

Preregistration LDP Productivity and Reproducibility Mini-Project

Lucas Mackenzie[1]

[1] University of Montreal

28. September 2023

Study Information

Arctic penguin bill length and depth	Preregistration LDP Productivity and Reproducibility Mini-Project
Description	My research interestes include using the Palmer penguin database to study the relationship between penguin bill length and depth.
Hypotheses	My Hypothesis for this research is that bill length and bill depth correlates. With bill length being the explicative variable, meaning that as bill length increases so should bill depth.

Design Plan

This experiment will be performed using graphical analysys in R using the palmer penguin dataset.

Study type

Experiment. Plot the penguin bill length and penguin bill depth on a graph. Estimate visually if there is a correlation.

Observational Study. This data is taken from field data that researchers used to build the palmer penguin dataset.

Meta-Analysis. A meta analysis was not necessary for this mini-project

Other.

Blinding

No blinding is involved in this study.

Study design

The study design includes graphing these variables (bill length and bill depth) using the ggplot2 package in R.

Randomization

Sampling Plan

Existing data

This study will be using pre existing data from the palmer penguin dataset.

Registration prior to creation of data.

As of the date of submission of this research plan for preregistration, the data have not yet been collected, created, or realized.

Registration prior to any human observation of the data.

As of the date of submission, the data exist but have not yet been quantified, constructed, observed, or reported by anyone - including individuals that are not associated with the proposed study.

I have however looked at the data to form this research topic.

Registration prior to accessing the data.

As of the date of submission, the data exist, but have not been accessed by you or your collaborators. Commonly, this includes data that has been collected by another researcher or institution.

Registration prior to analysis of the data. As of the date of submission, the data exist and you have accessed it, though no analysis has been conducted related to the research plan (including calculation of summary statistics). A common situation for this scenario when a large dataset exists that is used for many different studies over time, or when a data set is randomly split into a sample for exploratory analyses, and the other section of data is reserved for later confirmatory data analysis.

Registration following analysis of the data. As of the date of submission, you have accessed and analyzed some of the data relevant to the research plan. This includes preliminary analysis of variables, calculation of descriptive statistics, and observation of data distributions. Please see https://cos.io/prereg for more information.

Explanation of existing data

This data was taken from the palmer penguin dataset. This dataset was produce by field mesurements of penguins. Specifically Pygoscelis penguins nesting on several islands within the Palmer Archipelago west of the AP near Anvers Island were sampled. These samplings occured in the southern hemisphere summers of 2007/08, 2008/09, and 2009/10.

Data collection procedures

Data was collected by tagging and monitoring nesting pairs for each summer season. A multitude of data was measured from these individuals, but what concerns this research was bill length and bill depth. At the time of capture these individuals had the structural size of their different body parts measured, including bill length and bill depth.

Sample size

There were 344 individuals sampled.

Sample size rationale

The sample size depended on the number of individuals nesting in the sampling sites each season, all mating individuals were counted.

Variables

The two variables in question for this simple analysis are bill length and bill depth.

Manipulated variables	There are no manipulated variables, this study is just trying to determine links between different traits.
Measured variables	These include bill length and bill depth.

Analysis Plan

The analysis will be performed by creating a simple graph of bill length and bill depth using ggplot2 in R.

Statistical models	No statistical models are necessary.
Transformations	No data transformations were necessary.
Inference criteria	The only inference criteria for this mini project will be by visual analysis. I will be determining whether there is a trend in the data or not.
Data exclusion	Any individuals with missing data for either bill length or bill depth will be excluded.
Missing data	Enter your response here.

Other

Other (Optional)	

References

Horst AM, Hill AP, Gorman KB (2020). palmerpenguins: Palmer Archipelago (Antarctica) penguin data. R package version 0.1.0. https://allisonhorst.github.io/palmerpenguins/. doi: 10.5281/zenodo.3960218.