

Presentations

Presenting author(s) are indicated with an asterisk (*).

2020

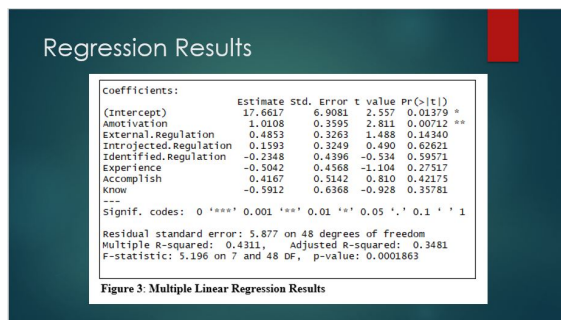
B. Gochanour*, S. Chen., L. Beebe. and D. Haziza. 2020. A Nonparametric Multiply Robust Multiple Imputation Method for Causal Inference. Joint Statistical Meetings (Contributed Poster Session). Virtual Conference.

A. Contina*, **B. Gochanour**, J.L. Alcantara, and M.B. Wunder. 2020. Stable Isotopes in Conservation Biology: Case Studies in Migratory Birds. The North American Congress for Conservation Biology (NACCB), Denver, Colorado.

B. Gochanour*, S. Chen., L. Beebe. and D. Haziza. 2020. A Nonparametric Multiply Robust Multiple Imputation Method for Causal Inference. Scheduled for poster presentation at the 2020 Graduate Research Education and Technology (GREAT) symposium, canceled due to COVID-19 pandemic.

2019

B. Gochanour*. 2019. Investigating Math Motivation and Math Anxiety in Undergraduate Students. University of Oklahoma, Research in Undergraduate Math Education Seminar. Norman, Oklahoma. Download Slides or Download Full Honors Thesis



2018

B. Gochanour*, L. Wiseman, A.M. Nguyen, P. Cimprich, M. Pandit, A. Contina, J.F. Kelly. 2018. The Effect of Handling Time on Boldness in Dark-eyed Juncos. First Year Research Experience Presentation Session. Norman, Oklahoma. Download Poster PDF



Motivation and Hypothesis

- The dark-eyed Junco (*Junco hyemalis*) is a common species found across the U.S. and Canada.
- Several experiments have studied juncos' aggression (for example, see Hargrave et al., 2001). In these cases, the measure of being likely with most birds to fight during a 10-minute encounter was used as the primary metric.
- Experimenters assume that handling birds causes them stress, however the effect of this stress on their behavior has been less well documented.
- Hypotheses:** that an inverse relationship will exist between the length of time a juncos is handled and future juncos' boldness.

Methods

Part I: Banding

- at this point, juncos are being captured to be banded.
- Each juncos was banded with a Radio Free America Identification (RFAID) band, a U.S. Geological Survey Aluminum band, and color bands.
- Age and sex were determined by the field, and blood was drawn for genetic testing.
- The bird was then released.

Part II: Observational Trials

- at thirty minutes' break time at the lab.
- Each juncos was placed in the same location as before, but now with the door left open.
- Observer used a spotting scope and a video recorder to record observations of juncos' behavior 3 minutes after the trap (Figure 1c).

Figure 1: Observational Trial Set-up

Results

As anticipated, there is a negative linear relationship between handling time and responsiveness rate among juncos.

However, the relationship is weak, and not statistically significant (p-value = .25) and is dependent on the sample size.

Although juncos were originally banded, the original study had no data points because juncos were never to be banded, and others didn't have handling time recorded.

Figure 2: Scatter plot showing the relationship between handling time and responsiveness rate. The x-axis is 'Handling Time (min)' and the y-axis is 'Responsiveness Rate (%)'. The data points show a negative correlation.

Discussion

The results provide only weak, non-significant support for the hypothesis that handling time is inversely related with the responsiveness rate of juncos.

For better results, a follow-up study could randomly assign juncos to two groups: one group that is handled and one group that is not handled. This would allow for a more controlled experiment and thus a more accurate conclusion as to whether or not handling time is related to boldness.

Results could be further improved if the observer simply did not handle the juncos.

Although juncos were banded, many could not be banded because the color bands were too small and the RFAID tag had a small hole in it. This could be fixed by using larger bands or by using a different type of band.

At the end of the study, the juncos were released. However, it is not clear if the juncos were released in the same location as they were captured. This could be fixed by using a more controlled environment.

When analyzing the data, we discovered a statistically significant relationship between the length of time a juncos was handled and its responsiveness rate. However, the relationship is weak and not statistically significant. This may be due to the small sample size.

Figure 3: Scatter plot showing the relationship between handling time and responsiveness rate. The x-axis is 'Handling Time (min)' and the y-axis is 'Responsiveness Rate (%)'. The data points show a negative correlation.

References

Briggs, R. A., Kelly, J. F., Brown, M. E., Kelly, J. F., Crawford, R. W., & Patten, J. (2001). Effects of experimental conditions on spring migration: An experiment on juncos (*Junco hyemalis*) in response to a changing world. *Journal of Experimental Biology*, 244, 101-110.

Gocho, T. (2012). A language and environment for statistical computing. R Foundation for Statistical Computing, Vienna, Austria. URL: <http://www.R-project.org/>