East Carolina University

Department of Psychology

PSYC 7433: Moderation Assignment

The Japanese government has hired you to assist in an investigation of the relationship between micronutrients and the growth of *Phallostethus cuulong*. They are interested in developing more effective methods of aquaculture of this small fish, which they intend to use (after processing into fish meal) as food for larger species being farmed for human consumption. Two micronutrients, priapam and koleos, are suspected to enhance growth in *P. cuulong*.

You obtain access to 200 locations (spread throughout southeastern Asia) known to host *P. cuulong*. At each you follow a standardized procedure for netting the fish. Your outcome variable is the number of fish caught. Your two predictor variables are level of priapam and level of koleos in the water. In your data file there is one line for each case. The delimiter is a blank space. The first score is catch, the second is level of priapam, and the third is level of koleos.

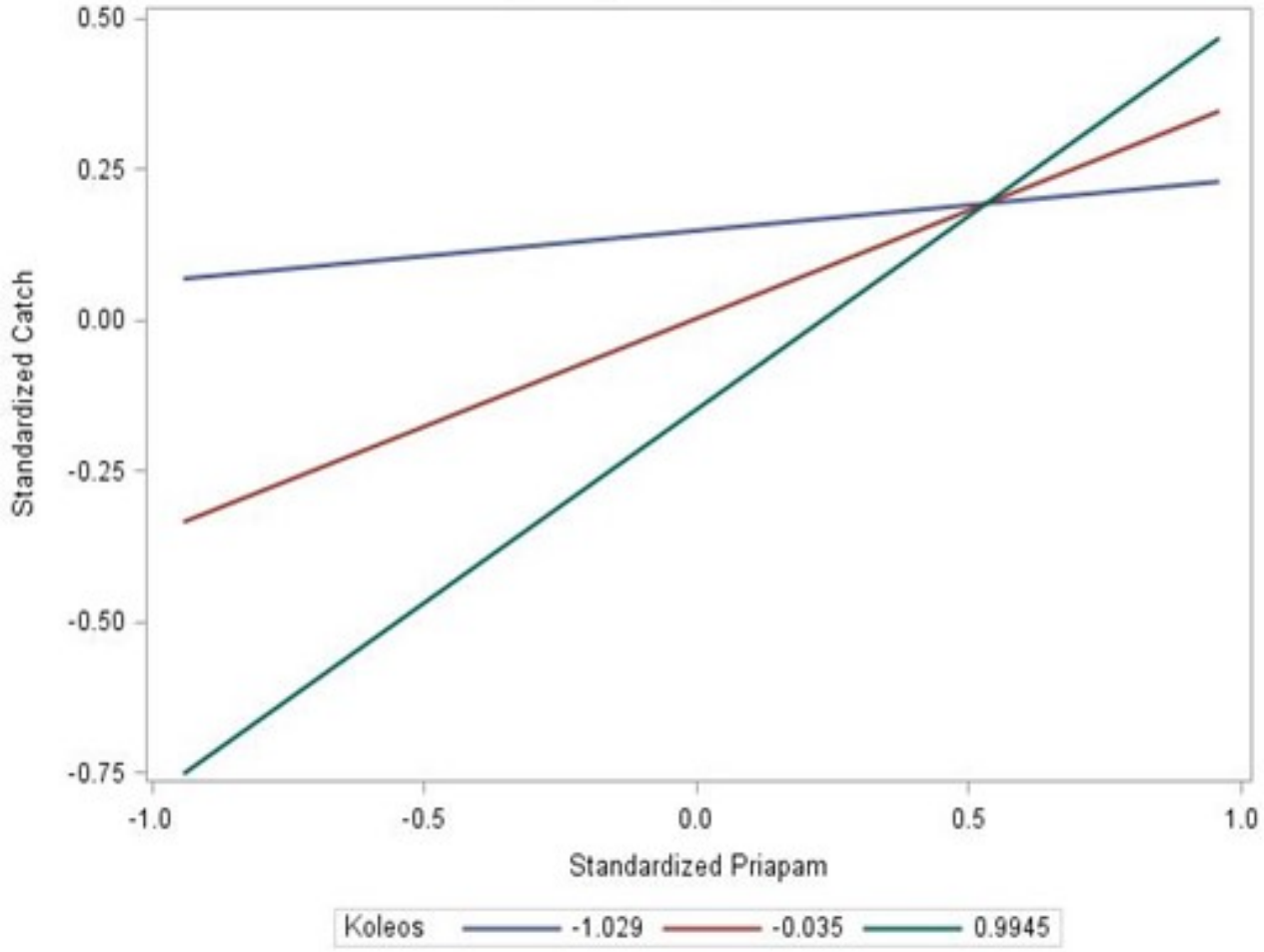
Use Proc Reg to conduct a multiple regression analysis predicting the catch from levels of priapam and koleos. Present the results as you would were you seeking to publish in a scholarly journal. Among the reported statistics should be means, standard deviations, zero-order correlation coefficients, beta weights, intercept and unstandardized slopes, multiple R^2, p values, and a confidence interval for R^2. Use this table template for most of this (replace the n-characters with the appropriate digits). Write up your presentation and interpretation of these results in a Word document. Be sure to refer to the table.

When you present your results at a meeting of the research team, a biochemist on the team says that she suspects that koleos acts as a catalyst. To test her hypotheses, you decide to include an interaction term in your regression model. While you do not need to center the variables, I request that you standardize all of the variables to mean 0, standard deviation 1 prior to conducting the moderation analysis. Here is the SAS code to do this:

```
proc standard mean=0 std=1 OUT=Zs; var Catch Priapam Koleos;
```

The standardized scores will now be in the data set called "Zs."

Use Process Hayes to test the hypothesis that koleos moderates the relationship between priapam and catch. Don't bother with the Johnson-Neyman technique, but do ask for the "Data for visualizing conditional effect of X on Y." Please use Version 3 of Process, which will give you simple slopes for the 16th 50th, and 84th percentiles. Feed these data to Proc Sgplot to create a plot of the simple slopes (at one *SD* below mean koleos, mean koleos, and one *SD* above mean koleos). Label the y axis "Standardized Catch" and the X axis "Standardized Priapam." Here is an example of such a plot:



Add to your earlier report the results and interpretation of the interaction analysis. Also present and comment on the plot of simple slopes. Your interpretation should include indicating which of the simple slopes is/are significant and which is/are not.

I have made available in BlackBoard two example articles which includes the presentation of a moderation analysis. Check them out under Articles, Multiple Correlation/Regression, Mediation and Moderation.

- Mausbach, B, T., von Känel, R., Patterson, T. L., Dimsdale, J. E.; Depp, C. A.; Aschbacher, K., Mills, P. J.; Ancoli-Israel, S., Grant, I. (2008). The moderating effect of personal mastery and the relations between stress and plasminogen activator inhibitor-1 (PAI-1) antigen. *Health Psychology*, *27*(2, Suppl), S172-S179. doi: 10.1037/0278-6133.27.2(Suppl.).S172
- The Association Between Emotional Labor and Burnout: The Moderating Role of Psychological Capital. Manuscript presenting the results of Alex Widis' Thesis. Aziz, S., Widis, A., & Wuensch, K. L. (2018). The association between emotional labor and burnout: The moderating role of psychological capital. *Occupational Health Science, 2,* 365-383. doi.org/10.1007/s41542-018-0029-1

Name your report document "Nnnnn_Moderate," where "Nnnnn" is your last name. Attach it to email sent to Professor Karl with the subject line "PSYC 7433: Moderation Assignment" If you do not include "PSYC 7433" in the subject line of your email, your email will go to the Junk Email folder, and Karl does not check that folder often. If you are using SAS, save your output in a web archive file (Moderation.mht) and attach that to the same email. If you are using SPSS, save your output in a Word docx file and delete all of the Notes tables before sending it along to me. Be sure that the email arrives in Karl's Inbox no later than noon on Thursday the 24th of October.

Depending on the settings in your email client, you may or may not be blocked from attaching an mht file. If you are blocked, put that file in a zip and attach the zip.

Here are some common errors to avoid:

- Not reporting *F*, *df*, and *p* for the multiple regression.
- Not reporting a confidence interval for the R^2.
- Not reporting the sr^2 and *t* or *F* test of the interaction.
- Not indicating which of the simple slopes were significant.

Links to the Data Files

Al-Hammori, Deanna	Bond, Dillon	Crespo, Julian	Demott, Bea
Donelan, Jennifer	Eddy, Will	Long, Kelli	Mcadams, Ellie
Mcintyre, Joel	Meier, Brittany	Nguyen, Vanessa	Owens, Brittnie
Robinson, Demi	Skinner, Lonnisa	Wynn, Taylor	
******* **Politician Takes a Lie Detector Test** *******			

Contact Information for the Webmaster,
Dr. Karl L. Wuensch

- Producing the interaction plot with SPSS

This page most recently revised on 19-October-2019.