**BIOST 2049**

**Spring 2023**

**Research Article Dissection 2B – Polynomial Regression**

**Due 2/8/23 by 11:59 via the Assignment Link posted to Canvas**

Please read the article “Use of Polynomial Regression to Investigate Biased Self-Perceptions and

ADHD Symptoms in Young Adolescents” by Fefer, Ogg and Dedrick found on Canvas and answer the questions below.

This is an individual assignment. You can discuss the article with your classmates, but the answers you submit should be your own.

Please be brief but write in complete sentences with appropriate interpretations (a yes or no answer will not get full credit). A few sentences is all that is necessary to answer each question.

1. What is the study’s research goal?

*The study’s research goal was to understand the relationship between student perceptions, teacher perceptions, and ADHD symptoms.*

1. From the methods section, briefly describe the use of polynomial regression. Why did they choose this method? Why do you think they used centering for their x variables?

Polynomial regression involves squared predictor variables. They chose this method because they expected the relationship between their covariates and response variable to have curvature. Centering the X variables allows one to interpret the intercept as the average amount of ADHD symptoms.

1. Would you consider the R2 values for the two models (separately academic domains predicting ADHD symptoms and social domains predicting ADHD symptoms) to be strong? Explain why or why not.

An R^2 value of .412 seems moderate, 41.2% of the variance in ADHD symptoms is still less than half. An R^2 value of .11 seems small because it means 89% of the variance in ADHD symptoms is unaccounted for by the model.

1. Does this analysis seem reasonable to answer the research questions?

It is confusing to me why there was no assessment of simpler models without polynomial terms. It is not clear how much these terms add to the predictive ability of the model. They also did not test transformations of their response variable before using polynomial regression.

1. While you may not understand all of the mathematical details in this paper, was the reasoning and description clear?

Their justification for polynomial regression was the presence of discrepancies in student-teacher ratings. I wish they had spent more time justifying this or at least pointing out how the paper they cited justified this.