Introduction to Mediation and Mode

Exercises #2: Moderation

You are going to use R to conduct some analyses. The dataset for these exercises is provided with the online material and it is called:

**Data\_interaction.csv**

This dataset includes fictional data I have simulated. My idea was to simulate data of a fictional study where the effects of an intervention on children’s problem behaviour are moderated by parenting skills.

These are the key variables:

|  |  |
| --- | --- |
| X | Ids |
| sdq0 | Strengths and difficulties scores of children at time 0 (the start of the study) |
| sdq1 | Strengths and difficulties scores of children at time 1 |
| diff | Difference between sdq1-sdq0. |
| treatment | A dichotomous variable indicating if the participant received a treatment (1) or a control procedure (0). |
| parenting | A variable representing parenting skills of children’s parents. |

Before you run the analyses

Install and load the following library in R:

|  |  |
| --- | --- |
| interactions | Provides a suite of options to inspect moderation models and plot the predicted effects. |
| lmtest | Provides the possibility to run Likelihood Ratio Tests comparing nested models |

Exercises

Use the dataset provided to complete the following tasks:

1. Run a model where the difference scores in problem behaviour, “diff”, are predicted independently by the treatment and the parenting variables. Successively, run a model where the effect of the treatment is moderated by parenting. Inspect the results.
2. Run a Likelihood Ratio test comparing the two models in exercise 1 and interpret the outcome.
3. Plot the results of the moderated effect of treatment conditional on parenting using the “interactions” package. Make sure the lines representing the slopes also include confidence intervals.
4. Probe the moderated effect of treatment depending on parenting to test if the slope between treatment and outcome (difference scores) is significantly different from zero at different values of parenting: test first if the slopes are significantly different from zero at values corresponding to 1SD, Mean, and -1SD of parenting, and then test these considering the most extreme observed parenting scores. What are the results?
5. Probe the moderated effect of treatment conditional on parenting scores using the Johnson-Neyman procedure.