

## **Multilevel Modelling**

### Introduction

A researcher was interested to know how aggressive behavior changed over time in a sample of children in care. In total, 405 children met study criteria they had levels of aggressive behavior measured every year for four years. In addition, on the first measurement occasion, the researchers recorded the amount of neglect by the child's parents before they went into care. The researchers reasoned that aggression would increase over time in the sample, but that some children would experience steeper increases than others. They speculated that those who experienced more neglect would have steep increases in aggression than those who experienced less. Your task is to address these questions using multilevel modelling. In your answer, please provide details about:

- 1) The data analysis methodology and justification (approx.. 15%)
  - How the student intends to analyze the data and why this approach is chosen.
- 2) The preliminary analyses (approx.. 10%)
  - Empty model, intraclass correlation coefficient, centering
- 3) The primary analyses (approx.. 60%)
  - The primary data analysis with findings supplemented using relevant Tables and Figures
- 4) The interpretations for each research question (approx.. 15%)
  - What do the analyses reveal in terms of each of the research questions?

### Research Questions

- 1) Is child aggression changing over time among children in care?
- 2) Do levels of parental neglect explain variance in the change trajectories of aggression among children in care?

### Participants

- 405 children in care

### Measured on the variables of interest:

- id: is the child identification number unique to each child in the study;
- gender: is the child gender (0 = male, 1 = female);
- age: is the child's age;
- neg: is the measure of parental neglect (runs from 1 to 15, with higher scores indicating more neglect)
- time: is the time variable centered at first time point = 0 and;
- aggress: is the time varying measure of aggressive behavior (runs from 0 to 10, with higher scores indicating more aggression)

### Assignment structure

Please structure your assignment using the following headings:

[TITLE]

[RESEARCH QUESTIONS]

[DATA ANALYSIS METHOD AND JUSTIFICATION]

[PRELIMINARY ANALYSES]

[PRIMARY ANALYSES]

[INTERPRETATIONS]

### Data file

The data file is called 'aggression\_long.csv' and can be downloaded from [here](#). It can also be accessed on the github in PB4A7 → SDA → MLM → aggression\_long.csv.