Prompt

Parents with anxiety disorders tend to have children with anxiety disorders as well (see everything ever written by Bogels, Borelli, Wood, or Rapee). This has led some to hypothesize that anxiety is genetically transmitted. However, you think there might be something else going on. Parental overcontrol, the excess regulation of a child's emotion, cognition, and behavior is strongly related to child anxiety. You wonder if anxious parents are more overcontrolling, leading to child anxiety. You decided to conduct a study to figure this out.

Variables
Parent_Anx: 1-20 (higher scores indicating higher anxiety symptoms)
Child_Anx: 1-20 (higher scores indicating higher anxiety symptoms)
Parent_OC: 1-20 (higher scores indicating greater use of overcontrol)

Research Question
Does parental overcontrol mediate the relationship between parent anxiety and child anxiety?

General assignment: Conduct the appropriate analysis using bootstrapping techniques. Report the proper assumptions and statistics in the results section. In the discussion section, provide a summary of what you found, discuss the implications, and give at least one limitation and future research direction. Don't forget to include a table for descriptives, correlations, and regression models.

Conceptual component: Conduct the same analysis, but use the Sobel test instead of bootstrapping to test the indirect effect. *Report the statistics in your results section.* Provide a summary of what of the findings were for this analysis and compare it to your bootstrapped analysis findings. If the two analyses found different outcomes, determine which results are more appropriate and justify your decision (Hint: What is a known issue with the Sobel test?).

Assumptions: All passed

Normality: Histograms look okay; Child_Anx - **skew (0.25)** and **kurtosis (-0.72)**

Linearity: Scatterplots look okay; Child_Anx is correlated with both Parent_Anx (**$r = .62$ $p < .001$**) and Parent_OC (**$r = .68$, $p < .001$**)

Homoscedasticity: Scatterplots look okay; Breusch-Pagan is non-sig, **$\chi2(1) = 0.11$ $p = .736$**

Multicollinearity: Correlations look okay; Parent_Anx **(VIF = 1.57, Tol = 0.64)** and Parent_OC **(VIF = 1.57, Tol = 0.64)**

What to report for mediation analysis

Models (F, df, p, R-sq); paths (B, z/t, p); in/direct effects (B, z, p, med%) *the direct values will have already been reported with the paths)*

LinReg w/o Bootstrapping to acquire R^2, etc.

Path a (X → M) (Parent Anx → Parent OC) – β = .60, R^2 = .36, $F(1, 72)$ = 40.90, $p < .001$
Path b (M → Y) (Parent OC → Child Anx) – β = .68, R^2 = .46, $F(1, 72)$ = 60.30, $p < .001$ *(this model not actually reported but I wanted to double check the R-sq was consistent w/ Mediation percentage)*
Path c (X → Y) (Parent Anx → Child Anx) – β = .62, R^2 = .38, $F(1, 72)$ = 44.40, $p < .001$
Path c' (X →(M →) Y) – $\beta_{ParentAnx}$ = .33, $\beta_{ParentOC}$ = .48, R^2 = .53, $F(2, 71)$ = 39.40, $p < .001$

Mediation w/ bootstrapping: partial mediation (med function)

Path a (X → M) (parent Anx → parent OC) – B = .57, z = 6.65, $p < .001$
Path b (M → Y) (Parent OC → child Anx) -- B = .50, z = 4.49, $p < .001$
Path c (X -> Y) (Parent Anx -> Child Anx) -- B = .61, z = 7.63, $p < .001$ **(pulled from total)**
Path c' (X →(M) Y) (Parent Anx → child Anx) -- B = .33, z = 3.18, $p = .001$

Direct**:** B = .33, z = 3.18, p = .001 **(53.60%**)

Indirect: B = .28, z = 3.51, $p < .001$ **(46.40%**)

Mediation w/out bootstrapping:
Path a (X → M) (parent Anx → parent OC) – B = .57, $t(73)$ = 6.48, $p <.001$; **Med z = 6.48, p < .001**

Path b (M → Y) (Parent OC → child Anx) -- B= .50, $t(73)$ = 4.65, $p < .001$; **Med z = 4.75, p < .001**

Path c (X → Y) (Parent Anx → child Anx) -- B = .61, t(73) = 6.66, $p < .001$; **Med z = 6.75, p < .001**

Path c' (X → (M →) Y) (Parent Anx → parent OC → child Anx) – B = .33, **t(72) = 3.24, p = .002; Med z = 3.30, p < .001**

Direct**:** B = .33, z = 3.30, $p < .001$ **(53.60%**)

Indirect: B = .28, z = 3.83, $p < .001$ **(46.40%**)

Discussion

-Both results indicate partial mediation: Parental overcontrol partially explains the relationship between parent anxiety and child anxiety

-Slightly different z-scores/p-values between the two could be due to the more conservative nature of the estimation process fr Sobel

-Potential limitation: self-report measures, etc.