

Question:

I am testing mediation in SEM and puzzled by the results. I have a significant path estimates from IV to Mediator and from Mediator to DV. However, the indirect effect is not significant (it is close). Total effect is not significant either.

I am not sure how to interpret this? Has anyone else experienced this case with significant paths but no significant indirect effects?

Could this perhaps be a power issue (sample size is on the small size but within 5 cases per parameter estimated)?

More details about the model: there are 3 IVs total and 1 mediator. All paths are significant. For 2 IVs I find significant indirect and total effects, but for 1 there is no significant indirect effect or total effect. It is this last IV that is puzzling to interpret given the significant paths.

Answer:

I checked with Dave MacKinnon and he says this is not an uncommon occurrence. He discusses the issues in connection with a simulation study shown in Table 4.3, page 99 in his 2008 book *Introduction of Statistical Mediation Analysis*. The power of the joint test of those two paths is larger than the power of the test of their product when using the usual z test with its associated symmetric confidence interval for the product. This appears to be due to the non-normality of the product, which makes the z test not optimal. There are 3 alternative approaches. (1) You can use bootstrapping to allow for a non-normal distribution (`BOOTSTRAP=` in the `ANALYSIS` command) and use `CINTERVAL(BCBOOTSTRAP)` in the `OUTPUT` command to get non-symmetric confidence intervals. (2) You can use `ESTIMATOR=BAYES` which shows you the full non-normal distribution of the product and gives you confidence intervals. (3) You can use the product distribution explicitly as discussed in MacKinnon (this last alternative is not available in Mplus because we feel the first two are sufficient).