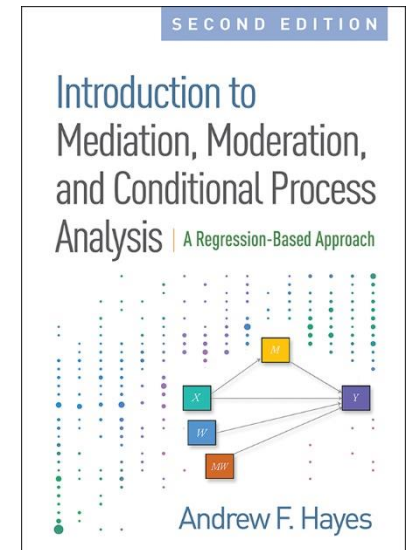
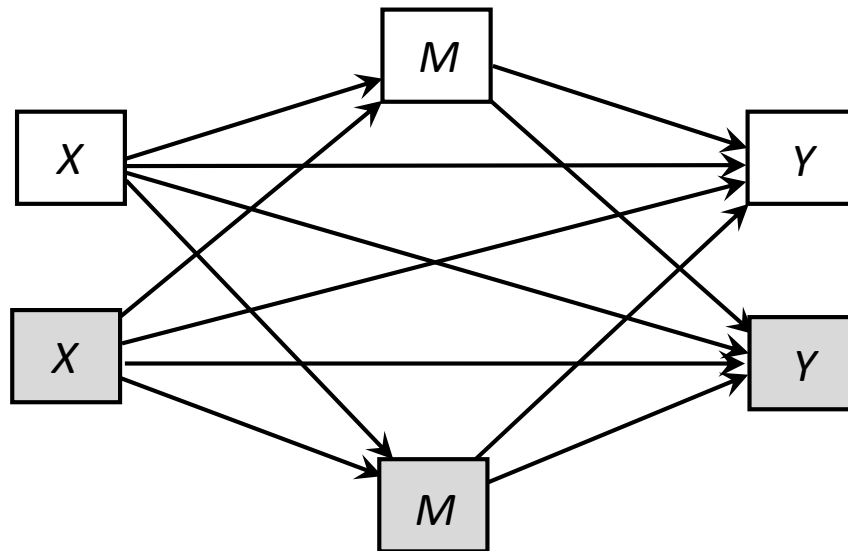


Estimating the APIMeM in PROCESS

PROCESS is a freely-available tool for SPSS and SAS that simplifies mediation, moderation, and conditional process analysis. Downloadable from www.processmacro.org and documented in *Introduction to Mediation, Moderation, and Conditional Process Analysis*



PROCESS allows for the specification of only one X and one Y in a mediation model. But you can estimate the APIMeM using PROCESS with a trick; it will take four PROCESS. Better to use MEDYAD, available for SPSS and SAS at www.afhayes.com or www.jjcoutts.com. But if you want to use PROCESS, here's how.

Example

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Assessing Mediation in Dyadic Data Using the Actor-Partner Interdependence Model

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The assessment of mediation in dyadic data is an important issue if researchers are to test process models. Using an extended version of the actor-partner interdependence model the estimation and testing of mediation is complex, especially when dyad members are distinguishable (e.g., heterosexual couples). We show how the complexity of the model can be reduced by assuming specific dyadic patterns. Using structural equation modeling, we demonstrate how specific mediating effects and contrasts among effects can be tested by phantom models that permit point and bootstrap interval estimates. We illustrate the assessment of mediation and the strategies to simplify the model using data from heterosexual couples.

Keywords: mediation, dyadic data, APIM, phantom models, bootstrapping

Models of mediation are common and of great importance, as they can provide information about causal relationships between variables that are mediated by one or more sets of intervening variables. Mediation refers to a mechanism through which an initial (X) influences an outcome (Y) by a third variable (M), termed *mediator* or *intervening* variable (Baron & Kenny, 1986; Judd & Kenny, 1981). In this mediation model, the effect from X to M is commonly designated as a , the effect from M on Y as b , and the effect from X on Y as c' (MacKinnon, 2008). The mediating or indirect effect (IE) of X on Y equals ab and the total effect equals $ab + c'$.

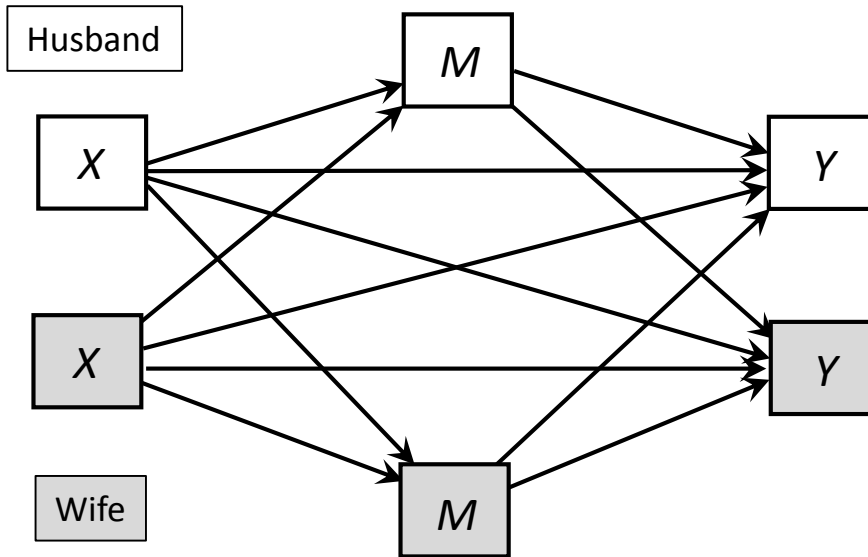
Over the last decade, researchers have begun to examine mediating mechanisms in dyadic data. The most commonly used model for this purpose is the actor-partner interdependence

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Coping
(inability)

Depression

Marital
Satisfaction



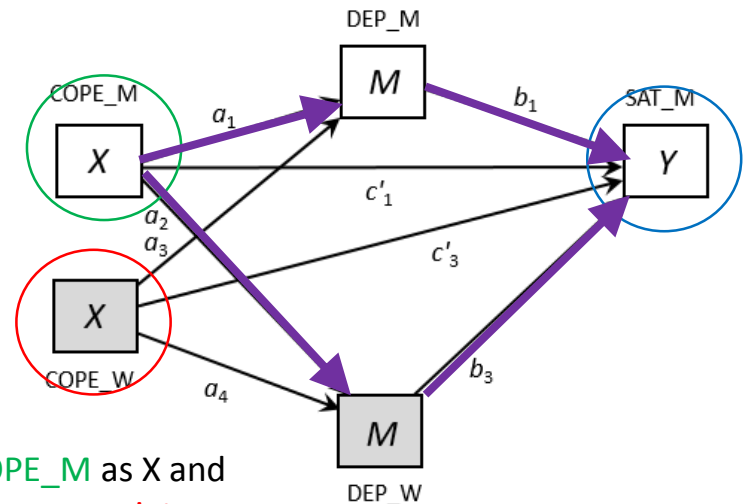
This example is from Ledermann et al. (2011). The variable names in the data file are COPE_M, DEP_M, SAT_M for the husband and COPE_W, DEP_W, and SAT_W for the wife.

A PROCESS trick

The two PROCESS commands below generate all of the path estimates, all four direct effects, and bootstrap confidence intervals for 4 of the 8 indirect effects in the APIMeM.

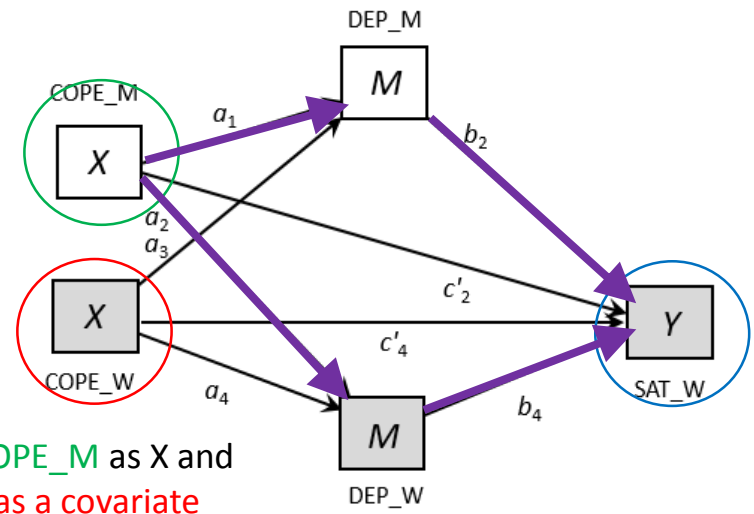
```
PROCESS y=SAT_M/x=COPE_M/m=DEP_M DEP_W/  
cov=COPE_W/model=4.
```

generates the indirect effects of COPE_M
on SAT_M: a_1b_1 and a_2b_3



```
PROCESS y=SAT_W/x=COPE_M/m=DEP_M DEP_W/  
cov=COPE_W/model=4.
```

generates the indirect effects of COPE_M
on SAT_W: a_1b_2 and a_2b_4

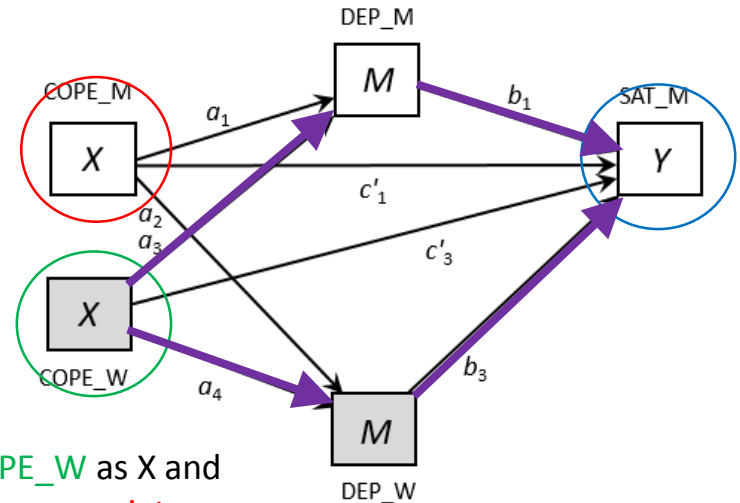


A PROCESS trick

Swapping X and covariate in the prior two commands gives inference for the other four indirect effects in the APIMeM.

```
PROCESS y=SAT_M/x=COPE_W/m=DEP_M DEP_W/  
cov=COPE_M/model=4.
```

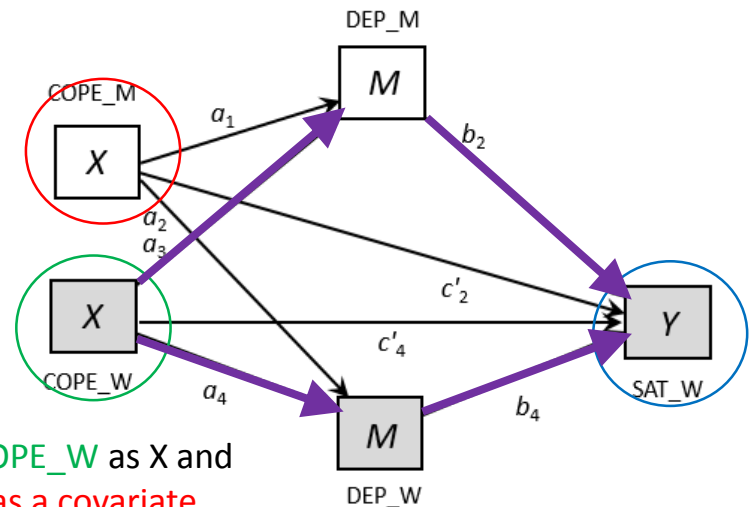
generates the indirect effects of $COPE_W$ on SAT_M : a_3b_1 and a_4b_3



Specify $COPE_W$ as X and
 $COPE_M$ as a covariate

```
PROCESS y=SAT_W/x=COPE_W/m=DEP_M DEP_W/  
cov=COPE_M/model=4.
```

generates the indirect effects of $COPE_W$ on SAT_W : a_3b_2 and a_4b_4



Specify $COPE_W$ as X and
 $COPE_M$ as a covariate

The APIMeM model in MEDYAD code

After the MEDYAD macro is executed, the line below conducts the APIMeM analysis

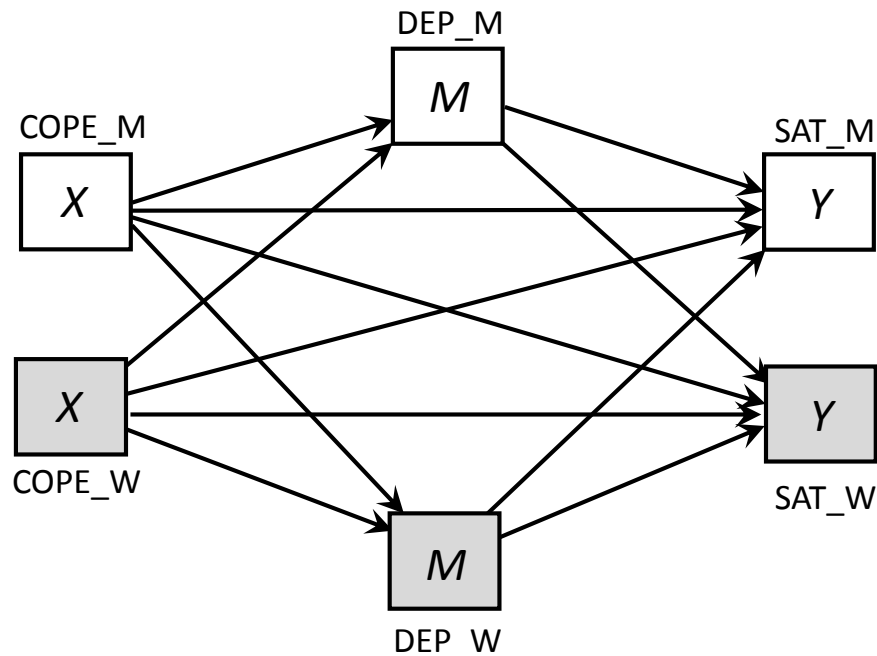
SPSS

```
medyad y=SAT_M SAT_W/x=COPE_M COPE_W/m=DEP_M DEP_W.
```

SAS

```
%medyad (data=couples,y=SAT_M SAT_W,x=COPE_M COPE_W,m=DEP_M DEP_W) ;
```

...that's it!



MEDYAD is freely available at www.afhayes.com