Error variances, covariances, and correlations by software/analytic approach

---------------------------------------------------------------------------------------------------------------------------------

|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
|  | VarFocal | VarPartner | Residual | TotalVarFocal | TotalVarPartnerCov(SE/CI) | Corr(SE/CI) |  |
| SPSS | .549 | .423 | NA | .549 | .423 | NA | .239(.046) |
| lme4 | .326 | .200 | .223 | .549 | .423 | 0.115(\*) | .451 |
| nlme | .376 | .502 | .046 | .549 | .423 | (\*) | .265 |
| lavaan(SEM) | .331 | .457 | .094 | .551 | .425 | 0.116(.024) | .298 |

---------------------------------------------------------------------------------------------------------------------------------

\* cannot get confidence intervals on var-cov components: Non-positive definite approximate variance-covariance

**MLM with nlme**

Variance StdDev Corr

focalid = pdLogChol(0 + focalcode + partcode)

focalcode 0.20840953 0.4565189 foclcd

partcode 0.06089854 0.2467763 0.699

dyadid = pdLogChol(0 + focalcode + partcode)

focalcode 0.37674500 0.6137956 foclcd

partcode 0.50282362 0.7091006 0.265

Residual 0.04641050 0.2154310

**MLM with lme4**

> as.data.frame(VarCorr(lme4Mlm))

grp var1 var2 vcov sdcor

1 dyadid:focalid focalcode <NA> 0.20018050 0.4474153

2 dyadid:focalid partcode <NA> 0.32625940 0.5711912

3 dyadid:focalid focalcode partcode 0.11523355 0.4509065

4 focalid focalcode <NA> 0.20840930 0.4565187

5 focalid partcode <NA> 0.06089846 0.2467761

6 focalid focalcode partcode 0.07872740 0.6988182

7 Residual <NA> <NA> 0.22297497 0.4722023

> VarCorr(lme4Mlm)

Groups Name Std.Dev. Corr

dyadid:focalid focalcode 0.44742

partcode 0.57119 0.451

focalid focalcode 0.45652

partcode 0.24678 0.699

Residual 0.47220

**SEM with lavaan with constraints on equality**

Covariances:

Estimate Std.Err z-value P(>|z|) Std.lv Std.all

Actor ~~

Partner 0.079 0.023 3.366 0.001 0.703 0.703

.mfanx ~~

.fmanx (dr) 0.116 0.024 4.729 0.000 0.116 0.314

.mcanx ~~

.cmanx (dr) 0.116 0.024 4.729 0.000 0.116 0.314

.myanx ~~

.ymanx (dr) 0.116 0.024 4.729 0.000 0.116 0.314

Variances:

Estimate Std.Err z-value P(>|z|) Std.lv Std.all

.myanx (va) 0.338 0.015 22.880 0.000 0.338 0.534

.mfanx (va) 0.338 0.015 22.880 0.000 0.338 0.534

.mcanx (va) 0.338 0.015 22.880 0.000 0.338 0.534

.cmanx (vp) 0.402 0.019 20.954 0.000 0.402 0.657

.fmanx (vp) 0.402 0.019 20.954 0.000 0.402 0.657

.ymanx (vp) 0.402 0.019 20.954 0.000 0.402 0.657

Actor 0.208 0.036 5.813 0.000 1.000 1.000

Partner 0.060 0.027 2.211 0.027 1.000 1.000

rltnshp. (rva) 0.087 0.015 5.895 0.000 1.000 1.000

rltnshp. (rva) 0.087 0.015 5.895 0.000 1.000 1.000

rltnshp. (rva) 0.087 0.015 5.895 0.000 1.000 1.000

rltnshp. (rvp) 0.150 0.019 7.821 0.000 1.000 1.000

rltnshp. (rvp) 0.150 0.019 7.821 0.000 1.000 1.000

rltnshp. (rvp) 0.150 0.019 7.821 0.000 1.000 1.000

NOTE. va + rva = .338 + .087 = 0.425 AND from MLM focalcode + Residual = .378 + .046 = 0.424

vp + rvp = .402 + .150 = 0.552 AND from MLM focalcode + Residual = .503 + .046 = 0.549

