

Mplus syntax file to accompany multilevel structural equation model (MSEM) from:

Preacher, K. J., Dunkley, D. M., & Zuroff, D. C. (January, 2010). *Demonstrating multilevel structural equation modeling for testing mediation: Effects of self-critical perfectionism on daily affect*. Talk given at the annual conference of the Society for Personality and Social Psychology, Las Vegas, NV.

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TITLE: Various MSEM models for Dunkley perfectionism data
DATA: FILE IS dunkley_011110.dat; ! text file containing raw data in long format
VARIABLE: NAMES ARE
DAY ID AGE SEX LANGUAGE FACULTY YEAR LIVING EVENT1 EVENT2 EVENT3
EVENT4 EVENT5 EVENT6 EVACAD EVSOC EVGEN MPSSLF1 MPSSLF2 MPSSLF3
MPSSLF4 MPSSLF5 MPSSLF6 MPSSLF7 MPSSLF8 MPSSLF9 MPSSLF10 MPSSLF11
MPSSLF12 MPSSLF13 MPSSLF14 MPSSLF15 MPSOTH1 MPSOTH2 MPSOTH3 MPSOTH4
MPSOTH5 MPSOTH6 MPSOTH7 MPSOTH8 MPSOTH9 MPSOTH10 MPSOTH11 MPSOTH12
MPSOTH13 MPSOTH14 MPSOTH15 MPSSOC1 MPSSOC2 MPSSOC3 MPSSOC4 MPSSOC5
MPSSOC6 MPSSOC7 MPSSOC8 MPSSOC9 MPSSOC10 MPSSOC11 MPSSOC12 MPSSOC13
MPSSOC14 MPSSOC15 FCM1 FCM2 FCM3 FCM4 FCM5 FCM6 FCM7 FCM8 FCM9 FPS1
FPS2 FPS3 FPS4 FPS5 FPS6 FPS7 FPE1 FPE2 FPE3 FPE4 FPE5 FPC1 FPC2
FPC3 FPC4 FDA1 FDA2 FDA3 FDA4 FORG1 FORG2 FORG3 FORG4 FORG5 FORG6
POSAFF1 POSAFF2 POSAFF3 POSAFF4 POSAFF5 POSAFF6 POSAFF7 POSAFF8
POSAFF9 POSAFF10 NEGAFF1 NEGAFF2 NEGAFF3 NEGAFF4 NEGAFF5 NEGAFF6
NEGAFF7 NEGAFF8 NEGAFF9 NEGAFF10 GENHSS1 GENHSS2 GENHSS3 GENHSS4
GENHSS5 GENHSS6 GENHSS7 GENHSS8 ACAHSS1 ACAHSS2 ACAHSS3 ACAHSS4
ACAHSS5 ACAHSS6 ACAHSS7 ACAHSS8 ACAHSS9 ACAHSS10 SOCHSS1 SOCHSS2
SOCHSS3 SOCHSS4 SOCHSS5 SOCHSS6 SOCHSS7 SOCHSS8 SOCHSS9 SOCHSS10
SOCHSS11 SOCHSS12 CDEN1 CDEN2 CDEN3 CDEN4 CBDIS1 CBDIS2 CBDIS3
CBDIS4 CMDIS1 CMDIS2 CMDIS3 CMDIS4 CACTV1 CACTV2 CACTV3 CACTV4
CPLAN1 CPLAN2 CPLAN3 CPLAN4 CSUPP1 CSUPP2 CSUPP3 CSUPP4 CPOSRE1
CPOSRE2 CPOSRE3 CPOSRE4 CSFBLM1 CSFBLM2 CSFBLM3 CSFBLM4 SSRAP
SSRAW SSRAR SSATP SSATW SSATR SSGP SSGW SSGR SSSIP SSSIW SSSIR
SSRWP SSRWW SSRWR DEPEND SC EFF MCDEP MCSC RELATED DEPNDNCE NEEDY
CONNECT DEQ1 DEQ2 DEQ3;
  USEOBSERVATIONS ARE (DAY NE 8); ! use data from only the first 7 days
  USEVARIABLES ARE
  ID EVENT1 EVENT3 EVENT6 SSRAP SSATP SSGP SC MPSSOC FCM FDA
  MPSSLF FPS GENHSS ACAHSS SOCHSS CDEN CBDIS CMDIS
  CACTV CPLAN CSUPP CPOSRE NAPARC1 NAPARC2 NAPARC3
  NAPARC4 NAPARC5 PPARC1 PPARC2 PPARC3;
  CLUSTER IS ID; ! Level-2 grouping identifier
  MISSING ARE ALL (-999);
  BETWEEN ARE MPSSOC FCM FDA SC MPSSLF FPS;
  DEFINE:

!Self-Critical Perfectionism indicators (MPSSOC, FCM, FDA, SC)
MPSSOC = MEAN(MPSSOC1-MPSSOC15);
FCM = MEAN(FCM1-FCM9);
FDA = MEAN(FDA1-FDA4);
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!Personal Standards Perfectionism indicators (MPSSLF, FPS)

MPSSLF = MEAN(MPSSLF1-MPSSLF15);

FPS = MEAN(FPS1-FPS7);

!Hassles indicators (GENHSS, ACAHSS, SOCHSS)

GENHSS = MEAN(GENHSS1-GENHSS8);

ACAHSS = MEAN(ACAHSS1-ACAHSS10);

SOCHSS = MEAN(SOCHSS1-SOCHSS12);

!Avoidant Coping indicators (CDEN, CBDIS, CMDIS)

CDEN = MEAN(CDEN1-CDEN4);

CBDIS = MEAN(CBDIS1-CBDIS4);

CMDIS = MEAN(CMDIS1-CMDIS4);

!Problem-Focused Coping indicators (CACTV, CPLAN, CSUPP)

CACTV = MEAN(CACTV1-CACTV4);

CPLAN = MEAN(CPLAN1-CPLAN4);

CSUPP = MEAN(CSUPP1-CSUPP4);

!Positive Reinterpretation (CPOSRE)

CPOSRE = MEAN(CPOSRE1-CPOSRE4);

!Negative Affect indicators (NAPARC1-NAPARC5)

NAPARC1 = MEAN(NEGAF1 NEGAF2);

NAPARC2 = MEAN(NEGAF5 NEGAF6);

NAPARC3 = MEAN(NEGAF4 NEGAF10);

NAPARC4 = MEAN(NEGAF3 NEGAF7);

NAPARC5 = MEAN(NEGAF8 NEGAF9);

!Positive Affect indicators (PAPARC1-PAPARC3)

PAPARC1 = MEAN(POSAF1 POSAF4 POSAF7 POSAF10);

PAPARC2 = MEAN(POSAF2 POSAF5 POSAF8);

PAPARC3 = MEAN(POSAF3 POSAF6 POSAF9);

ANALYSIS: TYPE = TWOLEVEL RANDOM;

MODEL: ! model specification follows

% WITHIN% ! Model for Within effects follows

!measurement model

HASSLES_w BY GENHSS ACAHSS SOCHSS;

AVOCOPE_w BY CDEN CBDIS CMDIS;

STRESS_w BY EVENT1 EVENT3 EVENT6;

PERCSS_w BY SSRAP SSATP SSGP;

PROCOPE_w BY CACTV CPLAN CSUPP;

CPOSRE_w BY CPOSRE@1;

NEGAF_w BY NAPARC1-NAPARC5;

POSAFFw BY PAPARC1-PAPARC3;

!within residual variances

GENHSS ACAHSS SOCHSS;

CDEN CBDIS CMDIS EVENT1 EVENT3 EVENT6 SSRAP SSATP;

CACTV CPLAN CSUPP CPOSRE@0 NAPARC1-NAPARC5 PAPARC1-PAPARC3;

!variances and covariances

HASSLESw AVOCOPEw STRESSw PERCSSw PROCOPEw CPOSREw;

AVOCOPEw WITH PERCSSw CPOSREw;

PERCSSw WITH CPOSREw;

POSAFFw NEGAFfw; POSAFFw WITH NEGAFfw;

!path coefficients

HASSLESw ON AVOCOPEw(pw);

STRESSw ON AVOCOPEw(qw);

PROCOPEw ON PERCSSw(rw)

CPOSREw(sw);

NEGAFfw ON HASSLESw(fw)

AVOCOPEw(hw)

STRESSw(jw)

PERCSSw(lw);

POSAFFw ON HASSLESw(gw)

AVOCOPEw(iw)

STRESSw(kw)

PERCSSw(mw)

PROCOPEw(nw)

CPOSREw(ow);

%BETWEEN% ! Model for Between effects follows

!measurement model

SCPERF BY MPSSOC FCM FDA SC;

PSPERF BY MPSSLF FPS;

HASSLESb BY GENHSS ACAHSS SOCHSS;

AVOCOPEb BY CDEN CBDIS CMDIS;

STRESSb BY EVENT1 EVENT3 EVENT6;

PERCSSb BY SSRAP SSATP SSGP;

PROCOPEb BY CACTV CPLAN CSUPP;

CPOSREb BY CPOSRE@1;

NEGAFfb BY NAPARC1-NAPARC5;

POSAFFb BY PAPARC1-PAPARC3;

!between residual variances

MPSSOC FCM FDA SC MPSSLF FPS GENHSS ACAHSS SOCHSS;

CDEN CBDIS CMDIS EVENT1 EVENT3 EVENT6 SSRAP SSATP SSGP

CACTV CPLAN CSUPP CPOSRE@0 NAPARC1-NAPARC5 PAPARC1-PAPARC3;

!variances and covariances

SCPERF PSPERF CPOSREb;
SCPERF WITH PSPERF CPOSREb;
PSPERF WITH CPOSREb;
HASSLESb AVOCOPEb STRESSb PERCSSb PROCOPEb CPOSREb;
POSAFFb NEGAFFb; POSAFFb WITH NEGAFFb;

!path coefficients

AVOCOPEb ON SCPERF(bb);
HASSLESb ON SCPERF(ab)
AVOCOPEb(pb);
STRESSb ON SCPERF(cb)
AVOCOPEb(qb);
PERCSSb ON SCPERF(db);
PROCOPEb ON PSPERF(eb)
PERCSSb(rb)
CPOSREb(sb);
NEGAFFb ON HASSLESb(fb)
AVOCOPEb(hb)
STRESSb(jb)
PERCSSb(lb);
POSAFFb ON HASSLESb(gb)
AVOCOPEb(ib)
STRESSb(kb)
PERCSSb(mb)
PROCOPEb(nb)
CPOSREb(ob);

MODEL CONSTRAINT: ! compute Between and Within indirect effects

new(baf bag bbh bbi bbp bpf bbpf bpg bbpg bbq bqj bbqj bqk bbqk
bcj bck bdl bdm bdr brn bdrn ben bsn wpf wpg wqj wqk wrn wsn);

baf = ab*fb;
bag = ab*gb;
bbh = bb*hb;
bbi = bb*ib;
bbp = bb*pb;
bpf = pb*fb;
bbpf = bb*pb*fb;
bpg = pb*gb;
bbpg = bb*pb*gb;
bbq = bb*qb;
bqj = qb*jb;
bbqj = bb*qb*jb;
bqk = qb*kb;
bbqk = bb*qb*kb;
bcj = cb*jb;
bck = cb*kb;

bdl = db*lb;
bdm = db*mb;
bdr = db*rb;
brn = rb*nb;
bdrn = db*rb*nb;
ben = eb*nb;
bsn = sb*nb;
wpl = pw*lw;
wpg = pw*gw;
wql = qw*lw;
wqk = qw*kw;
wrn = rw*nw;
wsn = sw*nw;