Mplus VERSION 6.1

MUTHEN & MUTHEN

05/14/2011 11:02 PM

INPUT INSTRUCTIONS

Title:

SEM\_template

Data:

File is SMAART\_HRS\_WIDE\_110513.dat ;

Variable:

Names are

secu idstrat idstudy idcohort

wgtr4 wgtr5 wgtr6 wgtr7 wgtr8 wgtrbase wgt\_pos

ddobmth ddobyr dndimtch dndimth dndiyr ddodyrs ddthflg dfrstint

dintmth4 dintmth5 dintmth6 dintmth7 dintmth8

dsex dedudgr deduyrs

dracehsp dracecnt dracewht draceblk draceoth

dageyrs4 dageyrs5 dageyrs6 dageyrs7 dageyrs8

dagecnt4 dagecnt5 dagecnt6 dagecnt7 dagecnt8

dagesqr4 dagesqr5 dagesqr6 dagesqr7 dagesqr8

dagec2\_4 dagec2\_5 dagec2\_6 dagec2\_7 dagec2\_8

dhhsize4 dhhsize5 dhhsize6 dhhsize7 dhhsize8

dmarint4 dmarint5 dmarint6 dmarint7 dmarint8

ewthfin4 ewthfin5 ewthfin6 ewthfin7 ewthfin8

eincind4 einchh4 eincind5 einchh5 eincind6 einchh6

eincind7 einchh7 eincind8 einchh8

bexcfrq4 bexcfrq5 bexcfrq6 bexcfrq7 bexcfrq8

bsmkevr4 bsmkevr5 bsmkevr6 bsmkevr7 bsmkevr8

bsmknow4 bsmknow5 bsmknow6 bsmknow7 bsmknow8

balcevr4 balcevr5 balcevr6 balcevr7 balcevr8

balcdwk4 balcdwk5 balcdwk6 balcdwk7 balcdwk8

balcddy4 balcddy5 balcddy6 balcddy7 balcddy8

hvtlsts4 hvtlsts5 hvtlsts6 hvtlsts7 hvtlsts8

hbmi4 hbmi5 hbmi6 hbmi7 hbmi8

hsrhscr4 hsrhscr5 hsrhscr6 hsrhscr7 hsrhscr8

hbrkhip4 hbrkhip5 hbrkhip6 hbrkhip7 hbrkhip8

hbcksym4 hbcksym5 hbcksym6 hbcksym7 hbcksym8

hhbpdia4 hhbpdia5 hhbpdia6 hhbpdia7 hhbpdia8

hdibdia4 hdibdia5 hdibdia6 hdibdia7 hdibdia8

hcandia4 hcandia5 hcandia6 hcandia7 hcandia8

hlngdia4 hlngdia5 hlngdia6 hlngdia7 hlngdia8

hpsydia4 hpsydia5 hpsydia6 hpsydia7 hpsydia8

hartdia4 hartdia5 hartdia6 hartdia7 hartdia8

hstkdia4 hstkdia5 hstkdia6 hstkdia7 hstkdia8

hhrtdia4 hhrtdia5 hhrtdia6 hhrtdia7 hhrtdia8

hiad3pt4 hiad3pt5 hiad3pt6 hiad3pt7 hiad3pt8

hiad5pt4 hiad5pt5 hiad5pt6 hiad5pt7 hiad5pt8

hadl3pt4 hadl3pt5 hadl3pt6 hadl3pt7 hadl3pt8

hadl5pt4 hadl5pt5 hadl5pt6 hadl5pt7 hadl5pt8

pcsdsum4 pcsdsum5 pcsdsum6 pcsdsum7 pcsdsum8

csrmscr4 csrmscr5 csrmscr6 csrmscr7 csrmscr8

cticlow4 cticlow5 cticlow6 cticlow7 cticlow8

ctic9pt4 ctic9pt5 ctic9pt6 ctic9pt7 ctic9pt8

ciwrstd4 ciwrstd5 ciwrstd6 ciwrstd7 ciwrstd8

cdwrstd4 cdwrstd5 cdwrstd6 cdwrstd7 cdwrstd8

ciwrscr4 ciwrscr5 ciwrscr6 ciwrscr7 ciwrscr8

cdwrscr4 cdwrscr5 cdwrscr6 cdwrscr7 cdwrscr8

cssstd4 cssstd5 cssstd6 cssstd7 cssstd8

cssscr4 cssscr5 cssscr6 cssscr7 cssscr8

cvcbstd4 cvcbstd5 cvcbstd6 cvcbstd7 cvcbstd8

cvcbscr4 cvcbscr5 cvcbscr6 cvcbscr7 cvcbscr8

t1age t2age t3age t4age t5age

t1 t2 t3 t4 t5

t1\_time2 t2\_time2 t3\_time2 t4\_time2 t5\_time2

pn hhid hhidpn;

Missing are all (-9999) ;

USEVAR are t1 t2 t3 t4 t5

CDWR1 CDWR2 CDWR3 CDWR4 CDWR5 age65 female agefem;

TSCORES = t1 t2 t3 t4 t5;

USEOBSERVATIONS = cdwrscr4 ne -9999 AND dagecnt4 ge -15 AND dagecnt4 le 20;

Define: BPAGEc65=dagecnt4; female=dsex-1; agefem=BPAGEc65\*female;

CDWR1=cdwrscr4; CDWR2=cdwrscr5; CDWR3=cdwrscr6; CDWR4=cdwrscr7; CDWR5=cdwrscr8;

Analysis:

Type = RANDOM;

Model: I S Q| cdwr1-cdwr5 AT t1-t5;

I ON BPAGEc65 female agefem;

S ON BPAGEc65 female agefem;

Q ON BPAGEc65 female agefem;

I WITH S Q; S WITH Q;

CDWR1(2);

CDWR2(2);

CDWR3(2);

CDWR4(2);

CDWR5(2);

INPUT READING TERMINATED NORMALLY

SEM\_template

SUMMARY OF ANALYSIS

Number of groups 1

Number of observations 17810

Number of dependent variables 5

Number of independent variables 3

Number of continuous latent variables 3

Observed dependent variables

Continuous

CDWR1 CDWR2 CDWR3 CDWR4 CDWR5

Observed independent variables

BPAGEc65 FEMALE AGEFEM

Continuous latent variables

I S Q

Variables with special functions

Time scores

T1 T2 T3 T4 T5

Estimator MLR

Information matrix OBSERVED

Maximum number of iterations 100

Convergence criterion 0.100D-05

Maximum number of EM iterations 500

Convergence criteria for the EM algorithm

Loglikelihood change 0.100D-02

Relative loglikelihood change 0.100D-05

Derivative 0.100D-03

Minimum variance 0.100D-03

Maximum number of steepest descent iterations 20

Maximum number of iterations for H1 2000

Convergence criterion for H1 0.100D-03

Optimization algorithm EMA

Input data file(s)

SMAART\_HRS\_WIDE\_110513.dat

Input data format FREE

SUMMARY OF DATA

Number of missing data patterns 16

COVARIANCE COVERAGE OF DATA

Minimum covariance coverage value 0.100

PROPORTION OF DATA PRESENT

Covariance Coverage

CDWR1 CDWR2 CDWR3 CDWR4 CDWR5

\_\_\_\_\_\_\_\_ \_\_\_\_\_\_\_\_ \_\_\_\_\_\_\_\_ \_\_\_\_\_\_\_\_ \_\_\_\_\_\_\_\_

CDWR1 1.000

CDWR2 0.868 0.868

CDWR3 0.785 0.757 0.785

CDWR4 0.728 0.700 0.701 0.728

CDWR5 0.674 0.647 0.644 0.647 0.674

BPAGEc65 1.000 0.868 0.785 0.728 0.674

FEMALE 1.000 0.868 0.785 0.728 0.674

AGEFEM 1.000 0.868 0.785 0.728 0.674

Covariance Coverage

AGE65 FEMALE AGEFEM

\_\_\_\_\_\_\_\_ \_\_\_\_\_\_\_\_ \_\_\_\_\_\_\_\_

BPAGEc65 1.000

FEMALE 1.000 1.000

AGEFEM 1.000 1.000 1.000

THE MODEL ESTIMATION TERMINATED NORMALLY

MODEL FIT INFORMATION

Number of Free Parameters 19

Loglikelihood

H0 Value -142764.572

H0 Scaling Correction Factor 1.080

for MLR

Information Criteria

Akaike (AIC) 285567.143

Bayesian (BIC) 285715.106

Sample-Size Adjusted BIC 285654.725

(n\* = (n + 2) / 24)

MODEL RESULTS

Two-Tailed

Estimate S.E. Est./S.E. P-Value

I ON

BPAGEc65 -0.081 0.002 -32.494 0.000

FEMALE 0.573 0.030 18.996 0.000

AGEFEM -0.008 0.003 -2.410 0.016

S ON

BPAGEc65 0.000 0.001 -0.093 0.926

FEMALE 0.007 0.013 0.505 0.613

AGEFEM 0.002 0.002 1.076 0.282

Q ON

BPAGEc65 0.000 0.000 -2.218 0.027

FEMALE -0.004 0.002 -2.727 0.006

AGEFEM 0.000 0.000 -1.766 0.077

I WITH

S -0.118 0.017 -6.801 0.000

Q 0.005 0.002 2.598 0.009

S WITH

Q -0.005 0.001 -3.549 0.000

Intercepts

CDWR1 0.000 0.000 999.000 999.000

CDWR2 0.000 0.000 999.000 999.000

CDWR3 0.000 0.000 999.000 999.000

CDWR4 0.000 0.000 999.000 999.000

CDWR5 0.000 0.000 999.000 999.000

I 4.267 0.023 189.588 0.000

S -0.096 0.010 -9.445 0.000

Q 0.002 0.001 1.665 0.096

Residual Variances

CDWR1 1.988 0.022 90.266 0.000

CDWR2 1.988 0.022 90.266 0.000

CDWR3 1.988 0.022 90.266 0.000

CDWR4 1.988 0.022 90.266 0.000

CDWR5 1.988 0.022 90.266 0.000

I 2.235 0.046 48.350 0.000

S 0.055 0.011 4.928 0.000

Q 0.000 0.000 3.086 0.002

QUALITY OF NUMERICAL RESULTS

Condition Number for the Information Matrix 0.275E-06

(ratio of smallest to largest eigenvalue)

Beginning Time: 23:02:16

Ending Time: 23:04:07

Elapsed Time: 00:01:51

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Statistical Analysis

A time in study model was used, with individually varying time centred at the first occasion. Polynomial effects up to the quadratic were considered. Baseline age centred at age 65, sex centred at male, and their interaction were considered/included as covariates.

Results

Evaluation of fixed and random effects in the unconditional models indicated that including linear and quadratic random effects is appropriate to characterize the individual trajectories. Based on the growth model, the estimated mean score at the first occasion for a 65 year old man was 4.27 (SE=0.02), and the rate of decline was -0.09 (SE=0.01) per year, decelerating by 0.002 (SE=0.001, n.s.) per year.

At the first occasion of measurement, age of entry, sex and an age by sex interaction were all statistically significant. On average, scores were -0.08 (SE=0.002) lower per year older at study entry. Women had a 0.57 point advantage over men at age 65, but this advantage was -0.008 (SE=0.003) points smaller per year older at study entry. None of the covariates significantly predicted instantaneous rate of change at study entry, but there was evidence of greater acceleration of decline in older individuals and for women (-0.004, SE=0.002).

Based on pseudo-R2 (Singer & Willett, 2003), linear change accounts for 12% of the variance across time. Pseudo-R2 calculations also indicate that between-person age differences at study entry account for 21% of the variance in delayed recall at that point in time and 5% of the variance in linear change.