
Module: HLM2 (7.30)
Date: May 10, 2019
Time: 16:22:49

Specifications for this HLM2 run

Problem Title: no title

The data source for this run = hsb.mdm

The command file for this run = C:\Users\cinti\AppData\Local\Temp\whlmtemp.hlm

Output file name = C:\Users\cinti\Box Sync\Booth 2017-2018\Spring 2019\Statistical Methods of Research 2\TA Sessions\hlm2.html

The maximum number of level-1 units = 7185

The maximum number of level-2 units = 160

The maximum number of iterations = 100

Method of estimation: restricted maximum likelihood

The outcome variable is MATHACH

Summary of the model specified

Step 2 model

Level-1 Model

$$MATHACH_{ij} = \beta_{0j} + \beta_{1j} * (SES_{ij}) + r_{ij}$$

Level-2 Model

$$\beta_{0j} = \gamma_{00} + u_{0j}$$

$$\beta_{1j} = \gamma_{10} + u_{1j}$$

SES has been centered around the group mean.

Mixed Model

$$MATHACH_{ij} = \gamma_{00} + \gamma_{10} * SES_{ij} + u_{0j} + u_{1j} * SES_{ij} + r_{ij}$$

Final Results - Iteration 18

Iterations stopped due to small change in likelihood function

$$\sigma^2 = 36.70356$$

τ

| | | |
|---------------------|---------|---------|
| INTRCPT1, β_0 | 8.68087 | 0.04701 |
| SES, β_1 | 0.04701 | 0.68038 |

τ (as correlations)

| | | |
|---------------------|-------|-------|
| INTRCPT1, β_0 | 1.000 | 0.019 |
| SES, β_1 | 0.019 | 1.000 |

| Random level-1 coefficient | Reliability estimate |
|----------------------------|----------------------|
| INTRCPT1, β_0 | 0.908 |
| SES, β_1 | 0.260 |

The value of the log-likelihood function at iteration 18 = -2.335620E+004

Final estimation of fixed effects:

| Fixed Effect | Coefficient | Standard error | <i>t</i> -ratio | Approx. <i>d.f.</i> | <i>p</i> -value |
|--------------------------|-------------|----------------|-----------------|---------------------|-----------------|
| For INTRCPT1, β_0 | | | | | |
| INTRCPT2, γ_{00} | 12.636196 | 0.244503 | 51.681 | 159 | <0.001 |
| For SES slope, β_1 | | | | | |
| INTRCPT2, γ_{10} | 2.193157 | 0.127879 | 17.150 | 159 | <0.001 |

Final estimation of fixed effects (with robust standard errors)

| Fixed Effect | Coefficient | Standard error | <i>t</i> -ratio | Approx. <i>d.f.</i> | <i>p</i> -value |
|--------------------------|-------------|----------------|-----------------|---------------------|-----------------|
| For INTRCPT1, β_0 | | | | | |
| INTRCPT2, γ_{00} | 12.636196 | 0.243738 | 51.843 | 159 | <0.001 |
| For SES slope, β_1 | | | | | |
| INTRCPT2, γ_{10} | 2.193157 | 0.127846 | 17.155 | 159 | <0.001 |

Final estimation of variance components

| Random Effect | Standard Deviation | Variance Component | <i>d.f.</i> | χ^2 | <i>p</i> -value |
|------------------|--------------------|--------------------|-------------|------------|-----------------|
| INTRCPT1, u_0 | 2.94633 | 8.68087 | 159 | 1770.85115 | <0.001 |
| SES slope, u_1 | 0.82485 | 0.68038 | 159 | 213.43769 | 0.003 |
| level-1, r | 6.05835 | 36.70356 | | | |

Statistics for current covariance components model

Deviance = 46712.398927

Number of estimated parameters = 4