

Specify a Binomial model

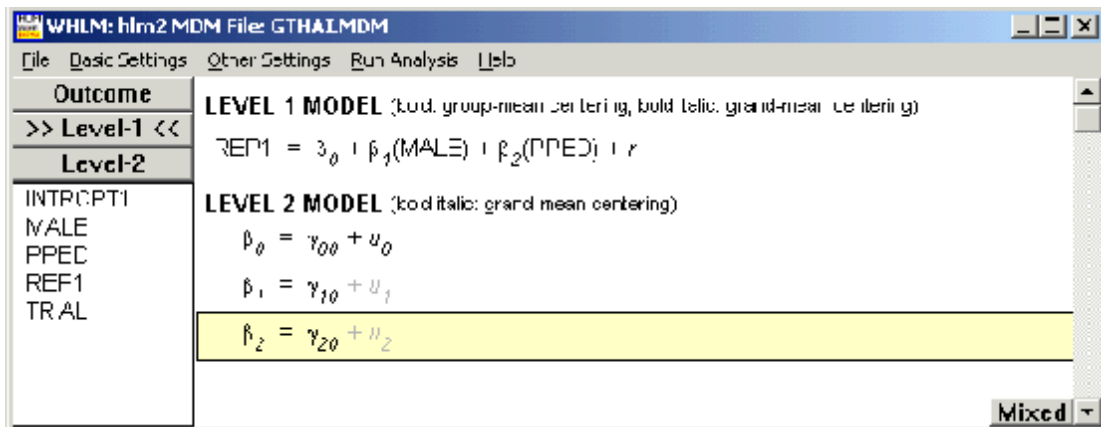
For a description of the statistical background of the Binomial model, please see two- and three-level models for binary outcomes.

Specifying a Binomial model

A common use of a binomial model is when analysts do not have access to the raw data at level 1. For example, one might know the proportion of children passing a criterion-referenced test within each of many schools. This proportion might be broken down within schools by sex and pre-primary experience. A binomial model could be used to analyze such data.

The Thailand data discussed elsewhere is used to illustrate the specification of a binomial model. The cases would be sex-by-pre-primary experience "cells" within each school (a maximum of 4 per school) where Y_{ij} is the number passing within cell i of school j and m_{ij} is the number of "trials," that is, the number of children in that cell. Sex and pre-primary experience would be level-1 predictors. The outcome is the number of children in a particular cell who repeated a grade. A variable TRIAL is used to indicate the number of children in each cell.

After specifying the model



click the **Outcome** button at the top of the variable list box to the left of the main HLM window to open the **Basic Model Specifications – HLM2** dialog box.

Basic Model Specifications - HLM2

Distribution of Outcome Variable

Normal (Continuous)
 Bernoulli (0 or 1)
 Poisson (constant exposure)
 Binomial (number of trials) TRIAL
 Poisson (variable exposure)

Multinomial Number of categories
 Ordinal

Over dispersion

Level-1 Residual File Level-2 Residual File

Title

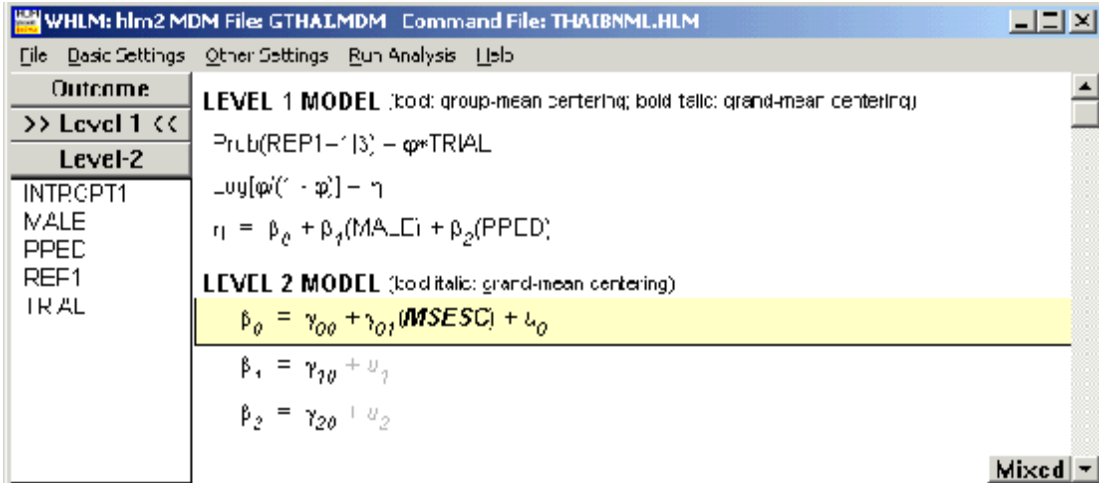
Output file name

Graph file name

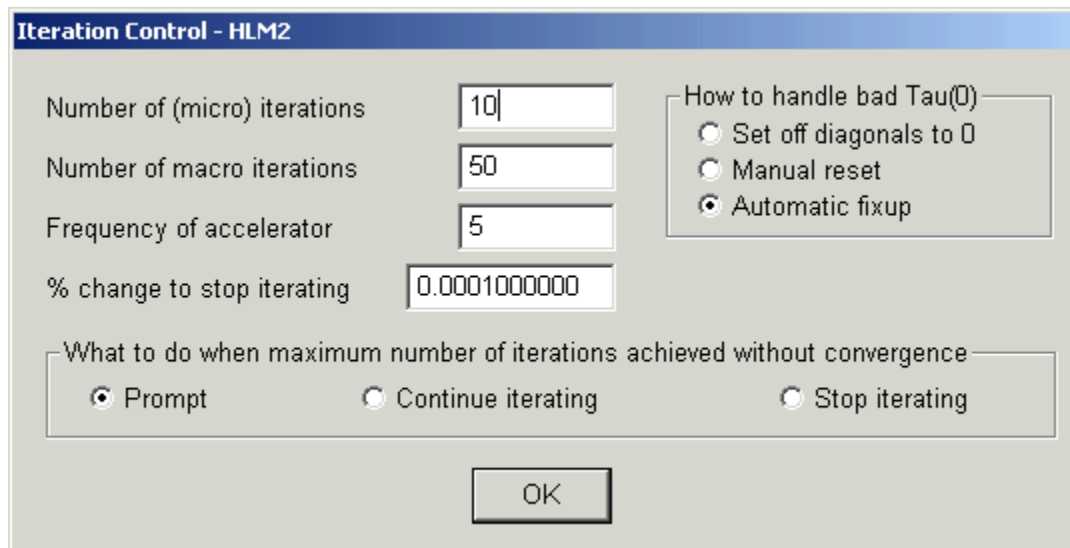
Select the **Binomial (number of trials)** option and select the variable from the pull-down menu in the dialog box that indicates number of trials (TRIAL in our example).

For binomial models with $m_{ij} > 1$ and for all Poisson models, there is an option to estimate a level-1 dispersion parameter σ^2 . To estimate σ^2 select the **Over-dispersion** option if appropriate.

Click **OK** to return to the main WHLM window, where the binomial model will be displayed.



The maximum number of macro and micro iterations may optionally be specified by selecting the **Iteration Settings** option from the **Other Settings** menu to access the **Iteration Control – HLM2** dialog box. Enter the required number of iterations in the **Number of (micro) iterations** and **Number of macro iterations** fields and click **OK** to return to the main window.



To run the analysis, click the **Run Analysis** option on the main menu bar.