Multilevel Models, Equations, Syntax & English

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Table 1: Table continues below

model	equation	Stata
Intercept Only	$y = \beta_0 + e_{ij}$	`mixed y`
Intercept Independent Variable(s)	$y = \beta_0 + \beta_1 x + e_{ij}$ $y = \beta_0 + \beta_1 x + \beta_2 z + e_{ij}$	`mixed y x` `mixed y x z`
Intercept Random variation of the intercept	$y = \beta_0 + e_{ij} + u_{0j}$	`mixed y || groupid:`
Unconditional intraclass correlation coefficient (ICC)	$\frac{\text{var}(u_{0j})}{\text{var}(u_{0j})+\text{var}(e_{ij})}$	`mixed y || groupid: estat icc`
Intercept Independent variable(s) Random variation of the intercept	$y = \beta_0 + \beta_1 x + e_{ij} + u_{0j}$ $y = \beta_0 + \beta_1 x + \beta_2 z + e_{ij} + u_{0j}$	`mixed y x || groupid: mixed y x z || groupid:`
Intercept Independent variable Random intercept Random slope	$y = \beta_0 + \beta_1 x + e_{ij} + u_{0j} + u_{1j} x$	`mixed y x || groupid: x`

model	equation	Stata
We can estimate multilevel models with more than 1 random slope.	$y = \beta_0 + \beta_1 x + \beta_2 z + e_{ij} + u_{0j} + u_{1j} x + u_{2j} z$	`mixed y x z || groupid: x z`

English
We estimated the mean of [outcome]
We estimated the relationship of [independent variable(s)] with [outcome]
We estimated the mean of [outcome]. We allowed the intercept of the model to vary by [groupid].
XX% of the variation in [outcome] was explained by clustering of participants in [groupid]
We estimated the relationship of [independent variable(s)] with [outcome]. We allowed the intercept of the model to vary by group.

English
We estimated the relationship of [independent variable] with [outcome]. We allowed the intercept of the model to vary by group. We also allowed the relationship of [independent variable] with [outcome] to vary by group.