

Latent Growth Curve Analyses of the Development of Height

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The purpose of this article is to describe some applications of latent growth curve models within the context of structural equation modeling. Data from Trickett and Putnam (1993) on the physical height of adolescent girls are analyzed. Developmental differences in height are analyzed for a subsample of sexually abused girls ($n = 77$) and for a subsample of nonabused girls ($n = 75$), ranging in age from 6 to 18.5 years. Each girl was measured on 1 to 3 occasions. Thus, the techniques of “convergence” analysis are used. The integration of growth curve models and structural equation modeling allows for the estimation of curves spanning the entire range of ages, thus encompassing all participants. The data were analyzed by using raw data maximum-likelihood estimation with Mx computer software. Several hypothetical height growth functions were tested: no growth, linear growth, polynomial growth, and logistic growth. In addition, 2 estimations of optimal linear latent shape were computed, with and without a constraint of monotonically increasing loadings. The article presents power calculations for the ability of the different models to discern the growth of the abuse sample from the control sample.

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