

Multilevel Latent Growth Modeling With Latent-Trait-Dependent Dropout: A Cluster Randomized Sex Education Intervention

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Abstract

One approach to dropout in longitudinal data is to specify a joint model for longitudinal substantive and dropout processes where dropout may depend on the contemporaneous substantive response (observed or missing) and/or lagged responses (e.g. Hausman and Wise, 1979; Diggle and Kenward, 1994). We extend these models in several ways. First, we consider latent growth models with a fallibly and possibly coarsely measured latent trait as substantive response. Second, we develop multilevel versions to accommodate dependence induced by

clustered data. Third, dropout may depend on the latent trait instead of a fallible measure and can also be intermittent. The proposed multilevel latent growth model with latent-trait-dependent dropout is applied to a sex education trial where the intervention was randomized at the school level. Estimated intervention effects ‘corrected’ for dropout rest on unverifiable assumptions and dropout modelling may best be viewed as a sensitivity analysis. All models considered are special cases of the GLLAMM framework and can be estimated in gllamm by maximum likelihood using adaptive quadrature.