Public Abstract

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Title:A LONGITUDINAL BEHAVIOR GENETIC MODEL FOR ORDERED CATEGORICAL VARIABLES

A model for the analysis of longitudinal twin data, which is measured by ordered categorical variables, is proposed. The genetic growth curve model is one of widely used models for the analysis of longitudinal twin data. However, ordered categorical variables cannot be directly used in the genetic growth curve model due to violations of required assumptions. This study provides a framework that enables the analysis of ordered categorical variables in the genetic growth curve model. Given that ordered categorical variable, such as Likert scales, are common in psychological measurements, enabling the analysis of ordered categorical variables in the genetic growth is a substantial expansion of developmental behavior genetic studies. The proposed model was applied to simulated data sets. From the results of simulation analyses, relative contributions of genetic and environmental factors to developmental changes were well estimated. Some anomalies were found, and possible solutions were suggested. Limitations and further elaboration of the proposed model were also discussed.