

## Abstract

Structural equation modeling (SEM), which is a multivariate statistical technique combining regression analysis, path analysis and factor analysis, is extensively used in behavioral sciences. When the research findings of a field increase, there is a need to summarize them statistically. Meta analysis is a set of statistical techniques used to combine research findings in order to answer three main questions: Whether the effect is consistent across different independent studies, what the overall effect sizes are if they are consistent, and what the moderator effects are if they are not consistent. Traditionally, researchers estimate the pooled correlation matrix from independent studies by averaging the weighted correlation coefficients or the weighted Fisher z transformed correlation coefficients. Then the pooled correlation matrix is subjected to the analysis of SEM. This approach suffers from several technical problems. They are arbitrary sample size, nonpositive definite correlation matrix, and the analysis of correlation matrix in SEM. A new two-stage method based on the multigroup analysis of SEM was proposed in summarizing research findings in the context of SEM. In the first stage, multigroup equality constraints are imposed on the correlation coefficients across different studies to estimate the pooled correlation matrix and the covariance matrix of parameter estimates. In the second stage, the pooled correlation matrix is analyzed with the Arbitrary Distribution Free (ADF) method where the covariance matrix of parameter estimates in the first stage is used as the weight matrix. The total sample size of individual study is used as the sample size. Monte Carlo simulations showed that the proposed two-stage method performed better in the rejection counts and standard errors of parameter estimates than