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Implementing non-parametric residual bootstrap multilevel logit model with small number of level-2 units

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It is a challenge to model hierarchically structured data with a small number of groups (e.g., level 2 units). When the number of groups is small, standard errors of parameter estimates in multilevel modeling tend to be biased downward, thus inflating the test statistics and the type I error. Although both parametric and non-parametric residual bootstrap approaches have been developed to deal with small number of groups in multilevel modeling with continuous response variables, there are limited approaches available with binary response variables. Here, we have developed a SAS macro by implementing nonparametric residual bootstrap multilevel logit model to analyze binary response variables. Using simulated data, our results show explicit advantage of the nonparametric residual bootstrap approach compared to the default estimator-Residual Pseudo-likelihood (RSPL) – in SAS Proc GLIMIX with respect to modeling binary response variables in multilevel data with a small number of groups.

Biography

Yunfei Wang has completed his Dr of Public Health from the Department of Biostatistics, the University of North Carolina. He is an Assistant Professor and a Biostatistician in Children's National Medical Center, the George Washington University. He has published more than 16 papers in peer reviewed journals.

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