ESTIMATION OF THE CORRELATION COEFFICIENT WITH LEFT CENSORED AND REPEATED MEASURES DATA

Agustin Calatroni, Cynthia Visness, Herman Mitchell

Rho, Inc., Chapel Hill, North Carolina

Cytokines are released by cells in the immune system and inform other cells to generate an immune response. Different cytokines are released depending on the specific immune response required. The correlations among cytokine responses are of interest to immunologists. It is common for laboratory assays of cytokine response to be performed in duplicates or triplicates for quality control purposes. These assays normally have a limit below which the cytokine response cannot be measured, resulting in left censoring.

In order to account simultaneously for left censoring and repeated measures, a maximum likelihood method is proposed to estimate the correlation coefficient using SAS® NLMIXED. The approach is illustrated with data from the Urban Environment and Childhood Asthma Study (URECA).