Semiparametric marginal and association regression methods for clustered binary data

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Abstract Clustered data arise commonly in practice and it is often of interest to estimate the mean response parameters as well as the association parameters. However, most research has been directed to inference about the mean response parameters with the association parameters relegated to a nuisance role. There is little work concerning both the marginal and association structures, especially in the semiparametric framework. In this paper, our interest centers on inference on the association parameters in addition to the mean parameters. We develop semiparametric methods for both complete and incomplete clustered binary data and establish the theoretical results. The proposed methodology is illustrated through numerical studies.

Keywords Association · Binary outcomes · Clustered data · Estimating equation · Missing at random · Semiparametric estimation