

Regression Analysis of Biased Case-control Data With Application to Spontaneous Adverse Drug Reaction Reports

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Abstract

The data obtained from unmatched case-control sampling may suffer from selection or reporting bias, resulting in biased estimation of the parameter(s) of interest by standard analysis of case-control data. In this work, considering a reference sample from the source population, we obtain unbiased estimate of the population parameters by fitting a pseudo likelihood. This is an extension of the work by Scott & Wild (Biometrika, 1997) and Lee et al. (Biometrika, 2006), who have considered a profile likelihood approach by estimating the exposure distribution in the population nonparametrically, by introducing the concept of reporting bias. The procedure has been shown to be fully efficient. We motivate the need for such methodology by considering the analysis of spontaneous adverse drug reaction (ADR) reports in presence of reporting bias.

(Joint work with Anup Dewanji)