



Department of Decision Sciences

Statistics Seminar

Summarizing the association between disease onset and survival under cross-sectional sampling

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Abstract

In this work, we study a framework for summarizing the association between disease onset and survival. Usual models for bivariate times generally quantify departures from independence between the two times. If these times have a constrained sum, such as in the case of age at disease onset and residual lifetime from onset, model parameters may fail to have an appealing interpretation. To provide an interpretable description of the association between disease onset and survival, we construct and study a novel semiparametric model. Using the idea of targeted maximum likelihood estimation, we then consider estimation and inference for parameters based on this model using survival data obtained through a cross-sectional survey with follow-up. The data generated by this common epidemiological design are subject to systematic biases. We infer the association between dementia and the residual lifetime of Canadian elderly individuals using data from the Canadian Study of Health and Aging.