

On a simple estimation of the proportional odds model under right truncation

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Retrospective sampling can be useful in epidemiological research for its convenience to explore an etiological association. One particular retrospective sampling is that disease outcomes of the time-to-event type are collected subject to right truncation, along with other covariates of interest. For regression analysis of the right-truncated time-to-event data, the so-called proportional reverse-time hazards model has been proposed, but the interpretation of its regression parameters tends to be cumbersome, which has greatly hampered its application in practice. In this paper, we instead consider the proportional odds model, an appealing alternative to the popular proportional hazards model. Under the proportional odds model, there is an embedded relationship between the reverse-time hazard function and the usual hazard function. Building on this relationship, we provide a simple procedure to estimate the regression parameters in the proportional odds model for the right truncated data. Weighted and optimal estimations are also studied.

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