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Joint Modelling of Longitudinal and Event-Time Data for the Analysis of Longitudinal Medical Studies

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Joint modelling is a modern statistical method that has the potential to reduce biases and uncertainties due to informative participant follow-up in longitudinal studies. Although longitudinal study designs are widely used in medical research, they are often analysed by simple statistical methods, which do not fully exploit the information in the resulting data. In observational studies, biomarkers are measured at irregular follow-up visit times, and in randomised controlled trials, participant dropout is common during the intended follow-up; which are often correlated with patient's prognosis. Joint modelling combines longitudinal biomarker and event-time data simultaneously into a single model through latent associations. We describe the methodology of joint models with some applications in health research.

Keywords

Joint modelling, Longitudinal Data, Survival Data

Classification

Both methodology and application

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