INTI SARI

ANALYSIS DATA MULTILEVEL SURVIVAL MENGGUNAKAN METODE *HIERARCHICAL LIKELIHOOD*

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Sebuah metode untuk memodelkan data survival dengan pengelompokan multilevel akan dijelaskan. Digunakan metode *hierarchical likelihood* untuk mencocokkan model frailty. Metode tersebut telah terbukti lebih efisien dan memiliki algoritma yang cepat untuk model multilevel. Estimasi model lognormal frailty untuk tiga level hirarki model survival dijelaskan dengan detail. Metode tersebut diterapkan untuk menganalisis data pengamatan berulang infeksi *Chronic Granulomatous Disease* dengan ilustrasi efek rumah sakit dan efek pasien dianggap random. Studi kasus dilengkapi dengan penanganan kasus tersensor.

Kata kunci: Frailty, Hierarchical Likelihood, Lognormal frailty, pengamatan berulang, tiga level hirarki, tersensor

ABSTRACT

ANALYSIS MULTILEVEL SURVIVAL DATA USING HEIRARCHICAL LIKELIHOOD METHOD

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A method for modeling survival data with multilevel clustering is described. Hierarchical likelihood method is used for fitting frailty models. The method has proven to be more efficient and fast algorithm for multilevel models. Estimating frailty lognormal model for a three-levels hierarchical survival model are developed in detail. The method is applied to analyze a set of chronic granulomatous disease (CGD) data on repeated infections as an illustration with both hospital and patient effect being considered as random. The case study equipped with the handling of cases censored.

Keywords: Frailty, Hierarchical Likelihood, Lognormal Frailty, recurent, three-level hierarchy, censored