

**Invited Talk at Ninth International Conference on Statistics for
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**Title: Correlated Compound Geometric Shared Frailty Models Based on
Reversed Hazard Rate**

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Abstract:

Frailty models are used in the survival analysis to account for the unobserved heterogeneity in individual risks to disease and death. To analyze the bivariate data on related survival times (e.g. matched pairs experiments, twin or family data), the shared frailty models were suggested. Shared frailty models are used despite their limitations. To overcome their disadvantages correlated frailty models may be used. In this paper, we introduce the correlated compound geometric frailty models based on reversed hazard rate with three different baseline distributions namely, the generalized log-logistic type I, the generalized log-logistic type II and the modified inverse Weibull. We introduce the Bayesian estimation procedure using Markov Chain Monte Carlo (MCMC) technique to estimate the parameters involved in these models. We present a simulation study to compare the true values of the parameters with the estimated values. We also apply the proposed models to the Australian twin data set and a better model is suggested.