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Empirical likelihood confidence intervals for hazard and density functions under right censorship

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Abstract In this paper, we use smoothed empirical likelihood methods to construct confidence intervals for hazard and density functions under right censorship. Some empirical log-likelihood ratios for the hazard and density functions are obtained and their asymptotic limits are derived. Approximate confidence intervals based on these methods are constructed. Simulation studies are used to compare the empirical likelihood methods and the normal approximation methods in terms of coverage accuracy. It is found that the empirical likelihood methods provide better inference.

Keywords Censored data · Density function · Empirical likelihood · Hazard function · Kernel smoothing