

## **Parametric survival model in the presence of left-truncation and case-k interval censoring with fixed covariate**

### **ABSTRACT**

The purpose of this study is to evaluate the performance of parametric survival model in the presence of left-truncation and case-k interval censoring where individuals are monitored periodically with fixed k-inspection times and the event of interest occurs between any two following inspection times. The log-normal distribution is extended to incorporate fixed covariate and the properties of bias, standard error (SE) and root mean square error (RMSE) were compared in the presence of low and high percentage of truncation with fixed width of inspection times. Also, the properties of bias, SE and RMSE were equally compared when the midpoint imputation technique were implemented. The simulation study indicates that the bias, SE and RMSE of the parameter estimates increases as the percentage of truncation and the width of the inspection times increases. Following that, a coverage probability study were implemented to study the performance of the Wald confidence interval method for the parameters of the log-normal distribution. The results from this study is equally applicable to the parameters of the log-logistic distribution which shares similar hazard rate with the log-normal distribution.

**Keyword:** Left-truncation; Case-k interval censoring; Fixed covariate; Log-normal distribution; Midpoint imputation; Wald interval