

## **Cure models based on Weibull distribution with and without covariates using right censored data**

### **ABSTRAK**

In this paper we use a methodology based on the Weibull distributions covariates in the presence of cure fraction models, censored data and covariates. Objective: The objective of the study is to check the performance of mixture and non-mixture cure models based on LPML. Methods/Analysis: Two models were explored here in which are the mixture and non-mixture cure fraction models. Inferences for the models are obtained under the Bayesian approach via Markov Chain Monte Carlo (MCMC) where the posterior estimates were obtained by using Metropolis-Hastings sampling methods in the presence of covariates and without covariates considering a real life time dataset and comparing the two cure models using the Log Pseudo Maximum Likelihood estimates (LPML) and some related special cases of the distribution. Findings/ Conclusion: We observed that the Weibull distribution has the least LPML value while its special cases where the two models are quite similar having the highest values on the other hand, the Mixture fits better than the non-mixture having the highest (LPML) based on the results obtain from all the models suggesting that the standard parametric cure (mixture) model fits the AML data which shows a great indication of similarity with the covariates and flexibility of the models.

**Keyword:** Bayesian analysis; Cure models; MCMC algorithm; Right censored data; Survival analysis; Weibull Distribution