



## **CURE FRACTION USING MIXTURE MODELS ON THE MODIFIED WEIBULL DISTRIBUTION WITH AN APPLICATION TO GASTRIC CANCER DATA**

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### **Abstract**

In the survival analysis it is common that the event of interest is related to the death or the occurrence of a certain disease in individuals. All in all, at the end of the study, it is possible that one part of the sample does not come to suffer from the event of interest. These individuals may have been cured or it may be that they are immune to the event of interest. The traditional models aren't adequate in order to estimate this proportion of curing, being necessary that the statistical model embraces the curing proportion in the model. Nowadays there are many techniques to estimate the curing proportion, and one of these techniques is the mixture with cure fraction's model. We present an analysis based in the modified Weibull distribution, a three parameter distribution, in the presence of a curing fraction. Inferences for the proposed models are obtained under the Bayesian approach, using standard MCMC (Markov Chain Monte Carlo) methods. To verify this model's adequacy in the real data analysis, we considered an application to gastric adenocarcinoma patients' data, in which the estimated model was well adjusted to the data and accordingly estimated the curing proportion.

**Keywords:** Analysis of survival, cure fraction, mixture model, modified Weibull distribution.