

## ABSTRACT

**Background:** Researchers in medical sciences often tend to prefer Cox semi-parametric instead of parametric models for survival analysis because of fewer assumptions but under certain circumstances, parametric models give more precise estimates. The objective of this study was to compare two survival regression methods Cox Regression and Parametric Models - in patients with *HIV/AIDS* at Karuri Health Centre.

**Methods:** It was a retrospectively study where a total of 248 subjects were sampled .The period of study was from 1<sup>st</sup> January 2008 through 31<sup>st</sup> December 2012. Gender, age at initiation of HAART, baseline weight (kg) ,substance abuse (smoking, alcohol or any other drug), CD4 cell count (cells/mm<sup>3</sup>) taken at the beginning of the study, regimen type (TDF +3TC+EFV or NVP and AZT+3TC+NVP or EFV), history of drug adherence, whether the patient is on tuberculosis treatment or not and the world health clinical staging at the initiation of HAART were the predictor variables. Cox Proportional Hazard model a semi-parametric model and Accelerated Failure Time a parametric model (Weibull, Exponential and lognormal form) were performed with the Akaike Information Criterion (AIC) been used to compare the efficiency of models.

**Results:** The mortality rate was high in subjects who abused drug, those who did not adhere to treatment as prescribed, those who had tuberculosis and those who had low cd4 cell count and low BMI at the beginning of treatment. Using Cox proportional hazard model, covariates that significantly influence the survival of *HIV/AIDS* infected patients were gender, history of drug abuse and poor treatment adherence

**Conclusion:** Based on AIC, there was no major variability between the three parametric models as witnessed with Cox Proportional Hazard model. Among the parametric models Weibull is the best model in multivariate analysis. The Weibull AFT model appears to be an appropriate AFT model according to AIC compared to other AFT models, although it is only slightly better than exponential or log-normal model. Cox PH model fair poorly compared to other parametric models.