

Abstract

Survival analysis is a collection of statistical procedures for data analysis for which the outcome variable of interest is time until an event occurs. By time we mean years, months, weeks or days. The event also known as failure can be death, disease occurrence, disease recurrence or recovery from an illness. The importance of survival analysis is the ability to handle censored data. Censoring occurs when we have some partial information about an individuals survival time but we do not know the exact time of event occurrence. Censoring can arise due to; (a) failure to experience an event before the study. (b) loss of follow up during the study period. (c) Withdrawal from the study because of death from another cause. There three types of censoring mechanisms namely, left censoring, interval censoring and right censoring. Right censoring is the most common and is what will be dealt with in this study. Under right censoring the event time becomes incomplete at the right hand side of the follow up period e.g. due to loss of followup or withdrawal. Time to event data arises in many areas of study. Examples in biomedical applications include lifetime analysis in match-paired case control studies, studies of time to occurrence of diseases of paired organs, and the examination of duration times of critical stages of disease process. In demographic studies that involve the dynamics of mortality, study of time to death is of interest. In engineering we consider time until a machine stops working. In econometric, the failure time may be the time until an individual returns to work or any designated event of interest. The use of survival analysis has therefore become widespread in these many areas of application.