

## A Pretest for Choosing between Stratified Logrank or Wilcoxon in the Two-Sample Problem with Covariate

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**Abstract :** Logrank test and generalized Wilcoxon procedure are the two commonly used tests for comparing survival curves. Between the two, the logrank test is the appropriate test used when the proportional hazards (PH) assumption holds. Alternatively, the Wilcoxon method is used when the PH assumption fails. This is equally true when the data is stratified according to values of a covariate, with the stratified logrank as the first choice and stratified Wilcoxon as the alternative option when diagnostics show that the PH assumption is violated. Moreover, the choice between logrank and Wilcoxon tests also depends on whether survival curves tend to differ early or late in time. In this article, the relative performance of the stratified logrank against the stratified Wilcoxon over a range of treatment effect patterns is investigated. A method for using a Q-statistic to detect whether differences tend to occur early or late across strata are then proposed. Using Q as a pretest, the user will be able to choose the more powerful test under various patterns of deviations from the null hypothesis. Simulations show that the pretest is able to detect the more efficient procedure over varying patterns of treatment effect.

**Keywords :** covariates, pretest, proportional hazards, stratified logrank, stratified Wilcoxon

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