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A SIMULATION BASED COMPARATIVE STUDY OF SOME TESTS FOR CHECKING HOMOGENEITY OF NON-CROSSING SURVIVAL CURVES UNDER HIGH CENSORING RATES

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SUMMARY

This article presents a comparison of the statistical powers and the type I errors of some prominent tests of appraising the total homogeneity of Kaplan-Meier survival curves under high censoring rates. The performances of the selected tests were examined under non-crossing survival curves situation utilizing Monte Carlo simulation. A numerical comparison of performances of Log-rank, Wilcoxon, Tarone-Ware, Peto-Peto, Modified Peto-Peto, Fleming-Harrington (1,1), and Babalola-Adeleke tests was conducted. The result showed that the tests' statistical powers are low when the groups' censoring rates are high. Out of the six popular tests considered, the Wilcoxon test provided the highest power to detect differences when the groups' censoring rates are high in the situation considered. At the same time, the Fleming-Harrington (1,1) yielded the highest type 1 error. Real data of the HMO-HIV+ study was employed to show the applicability of the selected tests.

Keywords and phrases: Survival Analysis, Statistical Power, Type I error, Censoring, Weight, Wilcoxon

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