

1046-62-629

Hong Li* (honli@bgsu.edu), 707 Sixth St., Apt.6, Bowling Green, OH 43402. *All-pairwise Comparisons for populations with Unequal Error Variances*. Preliminary report.

Tukey (1953) method provided simultaneous inference for all-pairwise comparisons under balanced design and usual normality and equality of variances assumption. Under unbalanced design, Tukey-Kramer procedure gave a set of conservative simultaneous confidence intervals for all-pairwise differences, and has been widely used. These methods assume the variances are equal across all treatment groups. In practice, however, homogeneity of variances is seldom satisfied. In this article, an approximate approach for all-pairwise comparisons is proposed when the equality of variances can not be assumed. Type I error rate for both Tukey-Kramer procedure and the proposed method is calculated through a simulation study. The results showed that the error rate of Tukey-Kramer method is excessive, and it is more than four times the nominal level when the variances are different among all treatment groups, and the variance and the sample size are inversely paired. While all the error rates of the proposed method are within the nominal level. (Received September 16, 2008)