

Extending a priori procedure for simultaneously estimating location and scale parameters in the context of skew normal distributions

By

Ziyuan Wang and Tonghui Wang

Abstract Recently, researchers have become increasingly concerned with estimating the minimum sample sizes needed to provide good estimates of corresponding population parameters. The large, and ever increasing, literature on the a priori procedure (APP) is an outgrowth of this concern. APP equations and online calculators provide researchers with the ability to determine minimum sample sizes needed to provide good estimates of corresponding population parameters. However, an APP limitation is that, until now, each advance concerned one population parameter at a time. The present contribution is the first to consider two parameters at once: locations and scales, under skew normal populations, using the Bonferroni method. In addition to the underlying mathematical derivations, we provide a link to an online calculator that confers upon researchers the ability to determine the minimum sample size necessary to obtain good estimates of both locations and scales, simultaneously.