



Analyzing Zero-Inflated Continuous Data in Limited Sample Size

In pre-clinical research, a common challenge arises when dealing with data that contains a substantial proportion of zero values alongside continuous data. These zero values disrupt classical assumptions, such as normality, variance homogeneity, or absence of ties. Particularly in combination with small sample size, this problem exacerbates, as it reduces the informative number of observations even further. To address this complexity, robust but still powerful methods are needed. In a simulation study, we compared classical and novel techniques, assessing their validity and power within this specific context. While the intrinsic problem of low statistical power cannot be fully solved, certain approaches explored in the simulation exhibit promise and may prove valuable for pre-clinical research.

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Short bio:

Educational Background:

- Diploma in Mathematics from the Koblenz University of Applied Sciences (2008).
- Ph.D. in Biostatistics at the Institute of Medical Biometry, Epidemiology, and Informatics, Mainz (2018).

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- Lead Statistician for the Gutenberg Health Study at the University Medical Center of Johannes Gutenberg University Mainz, (2022).
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