

An optimal approach for hypothesis testing in the presence of incomplete data

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Abstract The adverse effect of small sample sizes, excessive nonresponse rate, and high dimensionality on likelihood ratio test statistic can be reduced by integrating with respect to a prior distribution. If information regarding the prior is too general (for example, only a parametric family can be specified), this distribution can be chosen from a principle of the most powerful testing. We propose the integrated most powerful test in the presence of missing data. This test can be used as a viable alternative to the maximum likelihood.

Keywords Parametric hypothesis testing · Most powerful test · Likelihood ratio · Missing data · Maximum likelihood