Lost in the evidence: variability of statistical results in clinical linguistics

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In empirical research in the field of clinical linguistics, characteristics of the sample and the choice of statistical methods can influence authors’ results and conclusions considerably. The variability of results depending on these two factors is demonstrated in this presentation by means of several examples taken from our studies. First, statistical evidence is provided for all three theoretically possible hypotheses on the link between language competence and voice disorders in German preschoolers: children with voice disorders score significantly (a) higher or (b) lower than their unimpaired peers in the validated language tests, (c) there is no statistically significant difference between children with and without voice disorders. Although the same statistical methods and comparable language tests are used in these three calculations, characteristics of the sample result in different conclusions. Second, the influence of the imputation on the predictive power of linguistic tests is demonstrated. Imputation is the insertion of values to stand in for missing data in the statistical analysis. Results of the sophisticated imputation methods are to a certain extent variable and can therefore influence the outcome of statistical tests considerably. Third, one of our studies on the link between stuttering and language skills of German preschoolers is utilized to demonstrate the influence of the sample size on the authors’ conclusions regarding this link. The range of possible conclusions can vary from “quite strong” to “non-existent”. Our considerations demonstrate the importance to critically reflect upon potential shortcomings of research practice.

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