**Imputation of Incomplete Multilevel Data with R**

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**Suggested talk duration (15-60 minutes)**

Depending on the conference organization, our proposal would be suitable either for a short paper presentation (15 minutes), or a longer interactive tutorial session (45-60 minutes).

**Summary (max. 500 words)**

Incomplete multilevel data requires careful consideration of the missing data problem and analysis strategy. In this tutorial, we focus on a popular strategy for accommodating missingness in multilevel data: replacing the missing data with one or more plausible values, i.e., imputation.

Imputation separates the missing data problem from the main analysis and the completed data can be analyzed as if it has been fully observed.

This tutorial illustrates the imputation of incomplete multilevel data with the statistical programming language *R*. We aim to show how imputation can yield less biased estimates from incomplete clustered data. We provide practical guidelines and code snippets for different missing data situations, including non-ignorable missingness mechanisms. For brevity, we focus on multilevel imputation using chained equations with the *R* *mice* package and its adjacent packages.

**Relevance to conference theme**

Missing data is ubiquitous in the human data sciences, such as the social and medical fields, where multilevel imputation methods are commonly applied. Our work showcases how recent developments in imputation methodology can be leveraged by multilevel experts.

**Keywords (max. 3)**

Missing data, imputation, R.