

Measurement error and study design: Impacts and recommendations

Bachelor Thesis

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Background:

It is well-known, that measurement error and misclassification of variables may distort the statistical analysis of observational data. Currently, the STRATOS initiative¹, in which Helmut Küchenhoff and Veronika Deffner participate, aims at providing accessible and accurate guidance in the design and analysis of observational studies also with regard to measurement error and misclassification. Within this work, the inclusion of knowledge about the size and structure about the measurement error into considerations about the study design is an open question.

Aim:

The objective of the Bachelor thesis is to review the recent research literature regarding the relationship between measurement error and study design. Therefore, works have to be identified which included considerations about measurement error into the study design, which describe and discuss the impact of measurement errors on the study design, e.g. on the required number of study objects or on the costs, and which give recommendations on the study design to minimize measurement error. The thesis serves as the starting point for a research paper on design issues related to measurement error.

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¹<http://www.stratos-initiative.org/>