

REGRESSION MODELS FOR ANALYSING COST DATA

Iris Reinhard¹, Klaus Stamm²

¹*Biostatistics, Central Institute of Mental Health, Mannheim, Germany*

²*Mental Health Services, Central Institute of Mental Health, Mannheim, Germany*

Health care cost data are often highly skewed due to some remarkable expensive events. These observations should not be excluded as outliers in health economics research, because the expensive events are frequently the consequence of costly medical procedures and thus considered as critically important and invaluable. Applying linear model analysis is thus not appropriate in many cases since the underlying assumptions are not fulfilled.

In this contribution the performance of some of the various approaches to analyse cost data (like the gamma or the log-normal model, in contrast to the classical OLS model) is evaluated by means of a simulation study in terms of type I error rates and power of the tests, and bias and precision of the estimators designed to look at the effect of a set of covariates on the expected outcome. The data generation process is thereby based on the distribution characteristics of an empirical data set of cost data collected in a health insurance company of a large chemical trust in Germany. Finally the examined regression models of the simulation study are applied to this data set and compared.