

Wallisch, C., Bach, P., Hafermann, L., Klein, N., Sauerbrei, W., Steyerberg, E. W., Heinze, G., & Rauch, G. (2022). Review of guidance papers on regression modeling in statistical series of medical journals. PLOS ONE (Vol. 17, Issue 1, p. e0262918). <https://doi.org/10.1371/journal.pone.0262918>

Short summary

Although regression models play a central role in the analysis of medical research projects, many misconceptions on various aspects of modeling leading to faulty analyses still exist. Many medical publications do not adequately reflect recent advances in statistical methodology and regression modeling, leading to a problem of knowledge transfer from statistical research to application. In response, some medical journals have published statistical tutorials and papers aiming to address this issue. This review assesses the current level of knowledge on regression modeling contained in such papers. The review identified 57 topic-relevant articles from 23 series and investigated 44 predefined aspects on regression modeling. The study found that most series covered general aspects of regression modeling, and logistic regression was the most frequently described regression type. Misconceptions or misleading recommendations were seldom, however, several gaps, such as addressing nonlinear effects of continuous predictors, model specification, and variable selection, were identified. The study recommends the development of statistical guidance to better support medical researchers in performing or interpreting regression analyses.