

# **GLMs and GLMMs in the Analysis of Randomised Experiments**

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## **Abstract**

The analysis of variance arises directly from the randomization theory of analysing experimental data. The Normal linear model analysis is usually used as an approximation to the exact randomization analysis. If the responses are counts or proportions a generalized linear model (GLM) is often used instead. It will be shown that GLMs do not in general arise as natural approximations to the randomization model. Instead the natural approximation is a generalized linear mixed model (GLMM). Examples will be given to illustrate that it can make an important difference.