

Variable	Example	Type of Regression	R function / R function for mixed models
Continuous	Age, Quality of Life	linear	lm
			<pre>lmer(), glmmTMB()</pre>
Binary	Success yes/no	binary logistic	glm(family=binomial)
			<pre>glmer(), glmmTMB()</pre>
Trials (or proportion of counts)	20 successes out of 30 trials	logistic	<pre>glm(cbind(trial, success), family=binomial)</pre>
			<pre>glmer(), glmmTMB()</pre>
Count data	Number of usage, counts of events	Poisson	glm(family=poisson)
			<pre>glmer(), glmmTMB()</pre>
Count data, with excess zeros or overdispersion	Number of usage, counts of events (with higher variance than mean of response)	negative binomial	glm.nb()
			<pre>glmer.nb(), glmmTMB(family=nbinom)</pre>
Count data with very many zeros (inflation)	see count data, but response is modelled as mixture of Bernoulli & Poisson distribution (two sources of zeros)	zero-inflated	zeroinfl()
			glmmTMB(ziformula, family=poisson)
Count data, with very many zeros (inflation) and overdispersion	Number of usage, counts of events (with higher variance than mean of response)	zero-inflated negative binomial	zeroinfl(dist="negbin")
			glmmTMB(ziformula, family=nbinom)
Count data, zero- truncated	see count data, but only for positive counts (hurdle component models zero-counts)	hurdle (Poisson)	hurdle()
			glmmTMB(family=truncated_poisson)
truncated and	see "Count data, zero-truncated", but with higher variance than mean of response	hurdle (neg. binomial)	vglm(family=posnegbinomial)
			glmmTMB(family=truncated_nbinom)
Proportion / Ratio (without zero and one)	Percentages, proportions of continuous data	Beta (see note below)	betareg()
			glmmTMB(family=beta)
Proportion / Ratio (including zero and one)	Percentages, proportions of continuous data	Beta-Binomial	BBreg(), betabin(), vglm(family=betabinomial)
Ordinal	Likert scale, worse/ok/better	ordinal, proportional odds	polr(), clm()
			<pre>clmm(), mixor(), MCMCglmm()</pre>
Cumulative, multinomial	No natural order of categories, like red/green/blue	cumulative link, multinomial	<pre>multinom(), clm(),bracl(), brmultinom()</pre>
			clmm(), mixor(), MCMCglmm()
Continuous, right- skewed	Financial data, reaction times	Gamma	glm(family=Gamma)
			glmer(), glmmTMB()
Continuous, but truncated or outliers		truncated	<pre>censReg(), tobit(), vglm(family=tobit)</pre>
Proportion / Ratio with > 2 categories	Biomass partitioning in plants (ratio of leaf, stem and root mass)	Dirichlet	DirichReg()

Note that ratios or proportions from count data, like cbind(trials, success), are modelled as logistic regression with glm(cbind(trials, success), family=binomial()), while ratios from continuous data where the response ranges from 0 to 1 are modelled using beta-regression.

