Improving the interpretation of binary and count models.

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Non-linear outcome distributions are common in clinical science, because researchers study phenomena that are binary (such as treatment relapse, presence/absence of a diagnosis), or that are counts (such as number of symptoms or problem behaviors endorsed). The general linear model and its extensions have long provided a flexible means of quantifying these non-linear distributions. However, interpreting findings from these models requires more care and nuance than interpreting those of linear models (such as regression). Whether researchers who apply the GLM to binary and count distributions effectively communicate their results in an intuitive manner remains an open question. We reviewed the clinical science literature and found frequent examples (XX%) of researchers providing inaccurate interpretation of GLM results, and very few cases (XX%)v where findings were communicated in a way that non-experts could understand. Building on our work developing tools to effectively communicate the results of linear interactions (McCabe, Kim & King, *in press*), the goal of the current manuscript is to provide a tutorial on interpreting model coefficients from binary and count models. We provide recommendations for interpretation and visual displays, and introduce a free and easy to use web application allowing researchers to display model results in an easy-to-understand format.