Improving the interpretation of binary and count models.

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Discrete outcome distributions are common in clinical science, including binary outcomes (e.g., treatment relapse, presence/absence of a diagnosis) and count outcomes (e.g., number of symptoms or problem behaviors endorsed). The generalized linear model (GzLM) provides a flexible means of representing these non-normal outcome distributions. However, the non-linear nature of the parameters they produce (e.g., odds ratios, rate ratios) makes interpretation less straightforward than for models assuming normal distribution. Methodologists have proposed that these models should be interpreted in the original units of the outcome (e.g., probabilities for binary outcomes, counts for count outcomes), whereas oftentimes applied researchers rely on odds-ratios or rate-ratios. We reviewed all articles published in the *Journal of Abnormal Psychology* and *Journal of Consulting and Clinical Psychology* between 2007 and 2017 that reported using a GzLM (*n* =55). It was common practice (81% of papers) for researchers to provide odds ratios and/or risk ratios. Only two papers (3.6%) communicated findings in a way that non-experts could understand, using either predicted probabilities or counts, or visualizing the effects in an intuitive manner. The current manuscript provides a tutorial on interpreting model coefficients from binary and count models. We advocate for extracting quantities of direct substantive interest such as predicted probabilities and counts and displaying these quantities in simple visual displays. We introduce a free and easy-to-use web application allowing researchers to display model results in an easy-to-understand format.