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June Gruber, Ph.D.,

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Co-Editors,

*Special Issue, Journal of Abnormal Psychology*

Dear Drs. Tackett and Miller:

We are writing to propose a manuscript for publication in the special issue of *Journal of Abnormal Psychology* on *Best Research Practices in Clinical Science.*

The manuscript is titled *Improving the interpretation of binary and count models*.

Our abstract follows.

Discrete outcome distributions are common in clinical science, including binary outcomes (relapse, presence of a diagnosis) and count outcomes (numbers of symptoms or clinically-relevant behaviors). Generalized linear models (GzLMs) provide 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 normality1. To make results easier to understand, methodologists recommend that GzLM parameters are best represented 1) in units that are most substantively meaningful and 2) at specific covariate values of interest2, but this is rare in the clinical science literature. For example, we found only two manuscripts out of 55 using binary or count outcomes in the *Journal of Abnormal Psychology* and *Journal of Consulting and Clinical Psychology* between 2007 and 2017 that followed these recommendations. The current manuscript provides a tutorial on interpreting model coefficients from binary and count models. We advocate for extracting and describing quantities of direct substantive interest and displaying these quantities in simple visual displays. Building on our recent work visualizing interactions for linear models3, we introduce a web application that allows researchers to analyze and display GzLM model results in an easy-to-understand format.

1 Ai, C., & Norton, E. C. (2003). Interaction terms in logit and probit models. *Economics letters*, *80*(1), 123-129.

2 King, G., Tomz, M., & Wittenberg, J. (2000). Making the most of statistical analyses: Improving interpretation and presentation. *American journal of political science*, 347-361.

3McCabe, C. J., Kim, D. S., & King, K. M. (2018). Improving Present Practices in the Visual Display of Interactions. *Advances in Methods and Practices in Psychological Science*, 2515245917746792.

Thank you for your consideration of this important topic of research,

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