On Modeling Relative Risks for Longitudinal Binomial Responses:
Implications from Two Dueling Paradigms

Lin, T. 1, Zhao, R. 1, Tu, S. 2, Wu, H. 3, Zhang, H. 4 and Xin Tu 1

1Division of Biostatistics and Bioinformatics
Herbert Wertheim School of Public Health and Human Longevity Science
UCSD, La Jolla, CA 92093
2College of Environmental Science and Engineering
Tongji University, Shanghai, China 200092
3Department of mathematics and statistics
Georgia State University, Atlanta, GA 30303
4Division of Biostatistics, Department of Preventive Medicine
Northwestern University Feinberg School of Medicine
Chicago, IL 60611

Acknowledgment

This research is supported in part by NIH UL1TR001442.

Author Contributions:

Contributors All authors participated in the discussion of the statistical issues and worked together to develop this paper. HZ and XT suggested the topic, and TL, RZ, ST and HW reviewed the literature. All authors discussed the conceptual and analytic issues with modeling relative risks for longitudinal data using the parametric and semiparametric models. RZ, ST and HW developed the simulation settings, algorithms and associated R codes and performed the simulation study under the direction of TL. TL, HZ and XT drafted the manuscript, while TL, RZ, ST and HW provided all the technical details and derivations, along with completing the Application Section. All authors worked together to finalize the manuscript.

Funding The project described was partially supported by the National Institutes of Health (grant UL1TR001442) of CTSA funding.

Disclaimer The content is solely the responsibility of the authors and does not necessarily represent the official views of the NIH.