

We present a joint transition model for a longitudinally observed outcome where the observation of the outcome is the result of a right censored recurrent event time process. We motivate our example through the need to analyze the Consecutive Pregnancy Study (CPS) data, a longitudinal cohort study of women with multiple pregnancies in 23 Utah hospitals from 2003 to 2010. The right censored observation window poses unique challenges to the analysis of the CPS data because of selection bias associated with over sampling of women who are predisposed to shorter gap times between pregnancies. There is also concern regarding an informative cluster size type problem where women who are prone to experiencing favorable pregnancy outcomes are subsequently more likely/willing/able to endure subsequent pregnancies. We address these concerns with a Shared Random Effect Model (SREM) and demonstrate that it performs well at estimating the transition probabilities even when the gap time and continuation portions of the model are misspecified with respect to the observation process. Similarly, we demonstrate the inadequacy of the GLMM framework through the implementation of a Monte Carlo simulation.