

Appendix B – The GLMER model specification

Level 1: Sample Level (Within-Patient)

In this level we model the outcome for each measurement occasion within patients. For the outcome for patient i at the time j y_{ij} , the logit of the expected value of y_{ij} is modeled as a function of predictors by (3)

$$\text{Logit}(E[y_{ij}]) = \eta_{ij} \quad (3)$$

Where η_{ij} is the linear predictor, defined by (4):

$$\eta_{ij} = \beta_0 + \beta_1 \text{time}_{ij} + \beta_2 \text{group}_i + \beta_3 (\text{time}_{ij} \times \text{group}_i) + X_i \gamma + u_i, \quad (4)$$

where β_0 represents the global intercept; β_1 represents the coefficients for the time effect (with time treated as categorical for 1h, 6h, 12h, 24h); β_2 is the coefficient for the effect for the interaction between time and group, capturing how the effect of the group varies at different time points; $X_i \gamma$ represents the fixed effects of confounders, where X_i is a vector of confounder variables for the patient i and γ is a vector of coefficients; u_i is the random intercept for patient i , accounting for the intra-patient correlation across repeated measures.

Level 2: Patient level

At this level the random effects are specified by (5):

$$u_i \sim N(0, \sigma_u^2), \quad (5)$$

Here, u_i captures the patient-specific deviation from the overall intercept β_0 and σ_u^2 is the variance of these patient-specific random intercepts.