

Level1 :

$$y_{i[t]} \sim N(\alpha_i + \beta_i \text{Months}_{i[t]}, \sigma_\epsilon^2), \text{ for } i = 1, \dots, n; \quad t = 1, \dots, 4$$

Level2 :

$$\begin{pmatrix} \alpha_i \\ \beta_i \end{pmatrix} \sim N\left(\begin{pmatrix} \mu_\alpha \\ \mu_\beta \end{pmatrix}, \Omega\right),$$

where

$$\begin{aligned} \mu_\alpha &= \gamma_{00} + \gamma_{01} \text{Age}_i + \gamma_{02} \text{Age}_i^2 + \gamma_{03} \text{survivor}_i + \\ &\quad \gamma_{04} \text{survivor}_i \cdot \text{Age}_i + \gamma_{05} \text{survivor}_i \cdot \text{Age}_i^2 \\ \mu_\beta &= \gamma_{10} + \gamma_{11} \text{survivor}_i + \gamma_{12} \text{age4Q}_i + \gamma_{13} \text{survivor} \cdot \text{age4Q}_i \\ \Omega &= \begin{pmatrix} \sigma_\alpha^2 & \rho \sigma_\alpha \sigma_\beta \\ \rho \sigma_\alpha \sigma_\beta & \sigma_\beta^2 \end{pmatrix} \end{aligned}$$