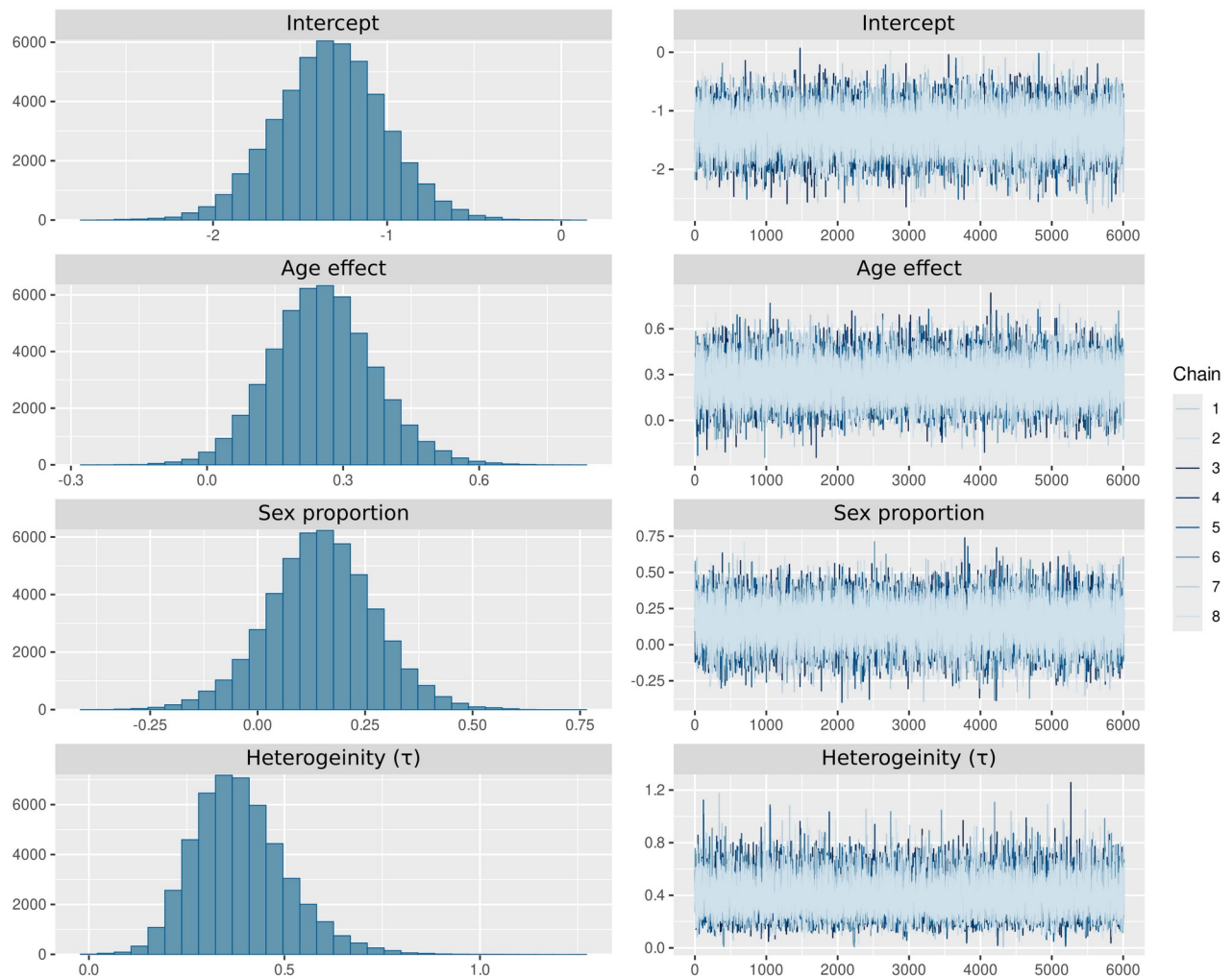
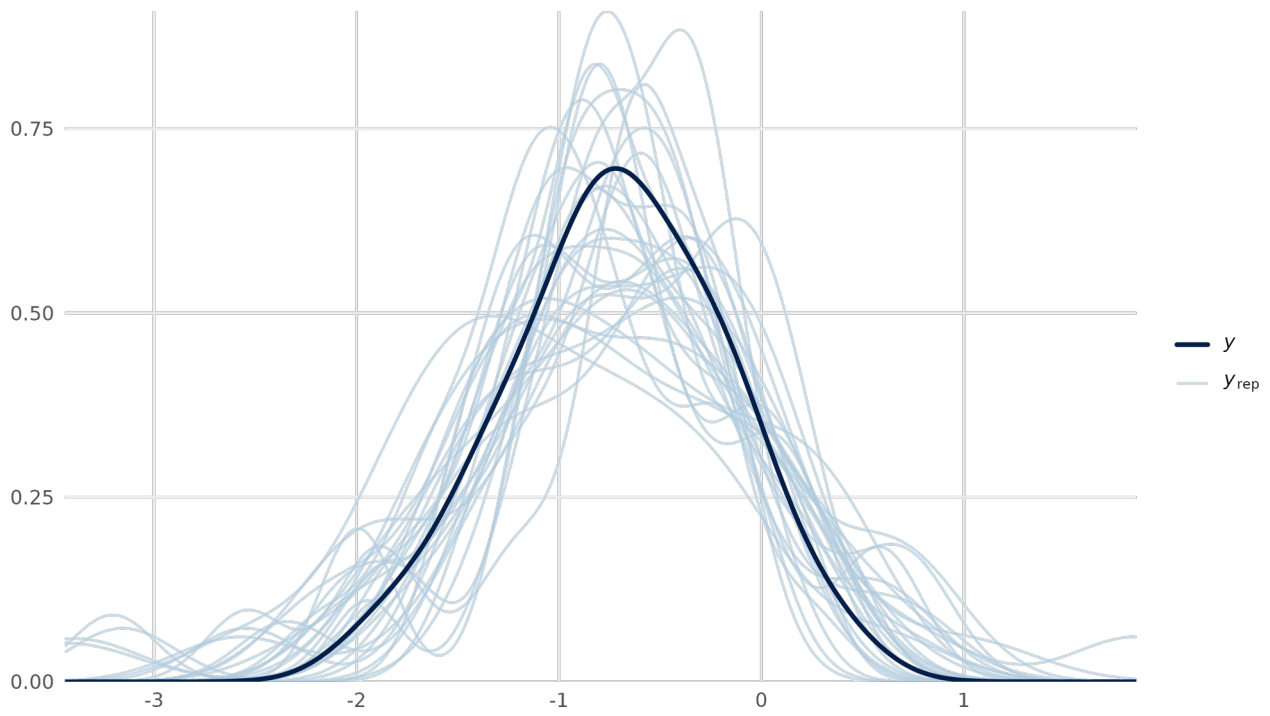


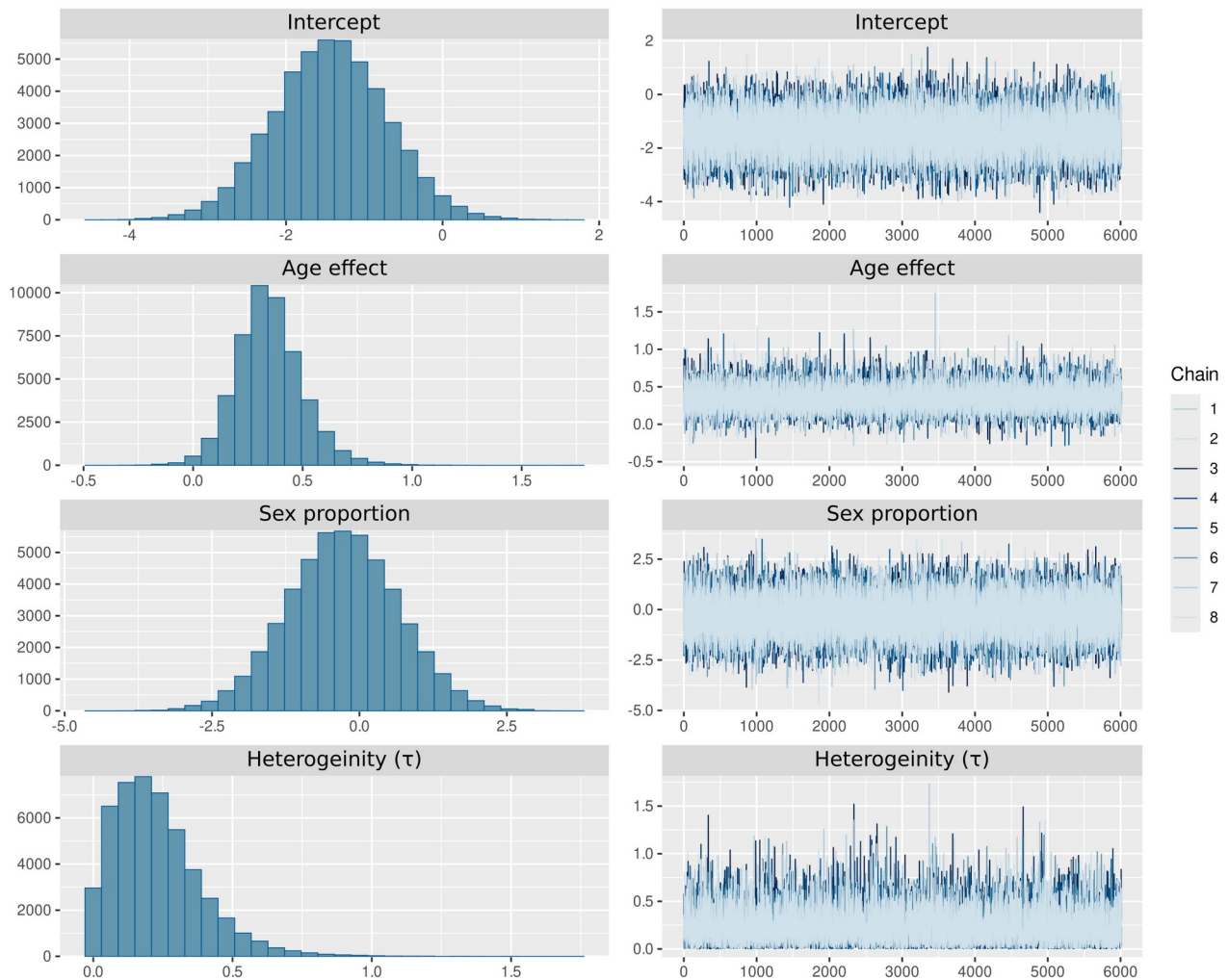
Supplementary Figure S1. Diagnostics for the pain model. Posterior distributions (left panels) and trace plots (right panels) for key model parameters, including the intercept, age effect, selected covariates, and the between-study heterogeneity parameter (τ). Chains show good mixing with no evidence of non-convergence, and posterior distributions are smooth and well-behaved.



Supplementary Figure S2. *Posterior predictive check for the pain model.* Density overlays comparing observed data (dark line) with simulated datasets drawn from the posterior predictive distribution (light lines). Each light curve represents a draw from the model-implied distribution. The close agreement between observed and simulated densities indicates that the model adequately captures the distributional features of the data.



Supplementary Figure S3. Diagnostics for the anxiety model. Posterior distributions (left panels) and trace plots (right panels) for key model parameters, including the intercept, age effect, selected covariates, and the between-study heterogeneity parameter (τ). Chains show good mixing with no evidence of non-convergence, and posterior distributions are smooth and well-behaved.



Supplementary Figure S4. *Posterior predictive check for the anxiety model.* Density overlays comparing observed data (dark line) with simulated datasets drawn from the posterior predictive distribution (light lines). The model captures the overall distribution of the data, with minor differences in shape likely reflecting sampling variability given the small number of studies.

