

Inference and prediction in quantile regression for longitudinal data are challenging without parametric distributional assumptions. We propose a new semiparametric approach that uses copula to account for intra-subject dependence and approximates the marginal distributions of longitudinal measurements, given covariates, through regression of quantiles. The proposed method is flexible, and it can provide not only efficient estimation of quantile regression coefficients but also prediction intervals for a new subject given the prior measurements and covariates. The properties of the proposed estimator and prediction are established theoretically, and assessed numerically through a simulation study and the analysis of a nursing home data.