

REPEATED MEASURES HOMEWORK**Hwk #5 (Repeated measures part 2) due 5/21/20**

1. (3 points) Using the HERS data, fit a model with the outcome of whether or not someone is on hypertension medication (htnmeds). Use predictors of age, BMI and exercise >3 times per week (exercise). Provide interpretations of each of the coefficients.
2. (6 points) Using the Georgia babies dataset, fit a model that allows for both mom-specific intercepts and trends in birth weight with birth order. Does this model fit appreciably better than a model that only has mom-specific intercepts? (Hint: consider the change in log likelihood). Compared to either an xtgee analysis or the mixed analysis with only random intercepts, does the model with random trends give a different conclusion with respect to the primary question of interest (the relationship of birth weight to birth order). Provide interpretations of the variances of the random intercepts and of the random trends. This may be easiest to do by considering the birth weight versus birth order relationship for a woman who is one standard deviation above or below normal for the intercept or for the trend.
3. (4 points) Find the longitudinal OAI_pain dataset on the website. The relevant variables are sev_pain (which is 1 if severe pain was reported in the right knee in at least one activity and 0 otherwise), BMI, visit (0=baseline, then yearly), sex (1=male, 2=female), and race (0=other non-white, 1=white, 2=African American, 3=Asian). Use a log link to fit a model to assess whether BMI and sex are related to the change in pain over time. Provide an interpretation of coefficients relevant to the change in pain over time (you do not need to interpret all the coefficients in the model).