PSYC 4330 – Seminar in Statistics

Exercise 6

This exercise will use the dataset 'disgusting_scale.csv', available on eClass. The main outcome variables are scores on the *Disgust Scale Revised*. This scale contains three factors. The first is 'Core Disgust', a mechanism which elevates awareness about disease. The second factor is 'Animal Reminder', a mechanism which elevates awareness to human animalistic nature. The third factor is 'Contamination-Based Disgust', which contains items related to dangers of contamination. There is also a 'General Disgust Score' across all items. Use $\alpha = .05$ for both questions.

1) Conduct a general linear model to explore the effects of age (Age) and education (Educ) on the general disgust score (Mean_general_ds). Note: use the categorical version of education (Educ) for this question. Conduct all pairwise comparisons for education using each of the following methods: a) No multiplicity control; b) Bonferroni familywise error control; c) Benjamini-Hochberg false discovery rate control. Summarize which effects are statistically significant with each method.

2) Conduct a general linear model to explore the effects age (Age), gender (Gender), and education (Education) on each of the factors of the Disgust Scale (Mean_Animal_reminder, Mean_core, Mean_Contamination). Note: use the continuous version of education (Education) for this question. Treat the full collection of hypotheses as a single family (i.e., each of the three predictors across each of the three outcome variables – 9 total hypothesis tests). Assess the statistical significance of each hypothesis using each of the following methods: a) No multiplicity control; b) Bonferroni familywise error control; c) Holm familywise error control; d) Benjamini-Hochberg false discovery rate control. Summarize which effects are statistically significant with each method.