Homework assignment 09

Use black text (if possible) for everything you include in this document. Keep both your answers and the original questions. Save this document in PDF format and submit it on Canvas. Please follow the general requirements described in the grading rubric.

1. Show a documentation header. Include your name, the purpose of the program, and the conditions under which others may or may not use your results.

2. Open the comma delimited text file glycyrrhizin.csv and display the first ten rows of data.

3. Compute two new variables, treatment\_non\_events and control\_non\_events that represent the differences between the total count and the events count. Also calculate the treatment\_probability and control\_probability by dividing the events count by the total count. Display simple descriptive statistics on the treatment and control probabilities, including the maximum and minimum values. Interpret these results. Note that the average is not necessarily the best summary measure for this data because it treats all studies equally even though some have much larger sample sizes. Even so, it provides some interesting insights about this dataset.

4. Run a meta-analysis for binary outcomes. Note that there is no subgroup analysis for this particular dataset. Use the log odds ratio as the summary measure. Include tests of homogeneity, measures of heterogeneity, effect sizes for individual studies, and display exponentiated statistics. Interpret Cochran’s Q statistic and I-squared.

5. Draw a forest plot. Is there evidence that the treatment is more effective than the control?

6. Identify the two or three studies that received the greatest weight and the two or three studies which received the least weight.

7. Draw and interpret the funnel plot.

8. Display the overall odds ratio and confidence interval across all 24 studies. Interpret these results.