**Lab X – Health Analytics III**

**Exercise 2.3: Estimation Study**

Q: Does this estimation study show an increased or decreased risk for dementia in users of statins? What is the Hazard Ratio? What is the 95% confidence interval?

A: This study shows an increased risk for dementia in users of statins.

The Hazard Ratio (HR) is the ratio of the hazard rates between two conditions described by two different levels of a variable (“Hazard ratio - Wikipedia,” n.d.). In our case, the HR is 1.16 which means our target cohort (Hyperlpidemia Used Statin) has 16% higher risk of getting dementia, compared to our comparator cohort (Hyperlpidemia Never Used Statin).

The confidence interval is an estimated value range that seems to be reasonable based on our observation. The center of the confidence interval is the sample mean, while there is some room on either side for uncertainty. The 95% in a 95% confidence interval means that if we calculate a confidence interval from 100 different samples, about 95 of them would contain the true population mean.

Q: What in the results provides information regarding how well differences in the cohorts have been adjusted for using propensity score matching?

A: The covariant balance provides information regarding how well differences in the cohorts have been adjusted for using propensity score matching.

**References**

Hazard ratio - Wikipedia. (n.d.). Retrieved February 19, 2020, from https://en.wikipedia.org/wiki/Hazard\_ratio