Question4 – Obesity and Depression

Some medical literature claims the increased risk of depression and anxiety disorder among obese individuals. Additionally, some believe that depression result in obesity and eating disorder. Thus, we will determine the relationship between obesity and depression in this part.

In this dataset, we use HLT\_BMI\_CAT to determine whether person obese, if the value is larger than 3(HLT\_BMI\_CAT = 4 and 5), it means person has obesity. Otherwise, if values are smaller or equal to 3, it means person doesn’t have obesity. As for depression, we use HLT\_OCDEPRSS to determine whether people with depression, with value 1 means Yes the person has been diagnosed with depression.

To see the depression rate in the two healthy and obese groups and if the difference in the depression rate is in fact statistically different between the two groups, we built a table, shown as follows:

*Table 1 Contingency Table of Health and Depression*

|  |  |  |
| --- | --- | --- |
|  | Obesity | Healthy |
| Depression | 1366 | 2039 |
| No-Depression | 2446 | 6593 |

From above, we can calculate depression rate for healthy groups are

2039 / (2039 + 6593) = 23.62%

depression rate for obesity groups are

1366 / (1366+2446) = 35.83%

Then we conducted the Fisher's exact test to see whether there is the relationship between depression and obesity. According to the exhibit below, the odds ratio is 1.805713. The p value is 2.2e-16, which is significant. Additionally, 95% confidence interval is 1.66 to 1.96, which doesn’t contain value 1. Thus, we can reject the null hypothesis. In conclusion, the difference in the depression rate is statistically different between the two groups.