Complete Exercises 11.3, 11.10, 11.11 (refer to Chapter 10 for evaluating Cohen’s d as a measure of effect size)

Hand in Exercises 11.3, 11.10, 11.11.

11.3

(a)

ttest BMI1==25

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描述已自动生成

Since the sample size = 400, it’s a large sample size, so the assumption of normality is not an issue for this analysis.

(b) H0: μ = 25; H1: μ > 25

(c) p < 0.01, so we can say that the mean body mass index of the population of non-institutionalized adults has an extremely significant statistical difference than 25. And since the test is one-tailed, so the mean body mass index of the population of non-institutionalized adults is greater than 25

(d) The Cohen’s d = (25.74253 - 25)/ 3.911743 = 0.1898. So, the effect size is small.

(e) because the confidence interval requires the value of in the calculation. In this question, the population standard deviation is not known, instead, it’s estimated. So, it is not a precise way to determine whether the mean body mass index of the population of non-institutionalized adults is greater than 25.

11.10

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ttest achsls12 == 55,if hsprog == 1 //11.10

(a) Since the sample size = 149, it’s a large sample size, so the assumption of normality is not an issue for this analysis.

(b) H0: μ = 55; H1: μ > 55

(c) The sample mean = 57.322 > 55, so the alternative hypothesis is supported

(d) p = 0.0006

(e) yes, because p < 0.01

(f) The mean of social studies achievement score for those who attend rigorous academic schools (p\*\* = 0.0006) is significantly larger than 55.

(g) Cohen’s d = (57.32235 – 55)/ 8.555241 = 0.27145, so it is between a small and medium size.

(h) The standard deviation value of 8.56 represents the estimate of the population standard deviation. The standard error of the mean value of 0.7 represents the reliability of mean, which indicates the spread of the mean of the sample size. This occurs because data points in the sample size is randomly selected from the population, and there will always be a sampling error during this process. The standard error of the sample mean value is used to describe the size of the sampling error.

(i) the p-value will be larger. , Since the denominator of equation t becomes larger, t becomes smaller. As a result, p-value will become larger.

11.11

(a) The sample size is 26 (<30), indicating a small sample size. So it is not robust to meet the normality assumption. But the result of normality = -0.696892/0.45556 = -1.53 < 2. So, the normality is tenable

(b) (27.72206,33.97024)