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**MGQ 201**

**Project 2 Writeup**

I chose this research topic because a lot of adults especially students don’t get enough sleep every night. I thought that this topic will be perfect to conduct a survey on and I got a lot of interesting responses. A lot of research is being made on how many hours and adult should sleep per night. I found an article on the topic I conducted the survey on. The link is below:

<https://www.helpguide.org/articles/sleep/sleep-needs-get-the-sleep-you-need.htm>

The article states that an average adult needs to sleep at least 7 hours every night. I think that this is true. Everyone needs a proper sleep of seven complete hours to function properly for the rest of the day. The article later describes what can be the reasons of not getting an enough sleep and also explains how one can get enough sleep every night. The article also describes the importance of deep sleep and REM sleep. I think that a healthy sleep of at least 7 hours will help an adult to function at their best. The article also describes a chart stating how much sleep one should get depending on their age.

In the survey I used convenience sampling method. I sent the link of the survey to specific groups and added the two questions in the survey. The first one asked whether the person is above 16 years of age and the second one asked how many hours do they sleep every night. For the upper limit of the confidence interval, I added the mean to the confidence level of 95% which is 6.957142857 + 0.280594211 = 7.237737068

And for the lower level I subtracted the confidence level of 95% from mean which is 6.957142857 - 0.280594211 = 6.676548646. And thus, my confidence interval is (6.676548646,7.237737068). This confidence of interval shows me the degree of uncertainty.

**My null and alternate hypothesis are as follows:**

H0: μ >= 7

Ha: μ < 7

Where Ho is the null hypothesis and Ha is the alternate hypothesis.

**Calculated items from my hypothesis test:**

|  |  |
| --- | --- |
| **t-Test: Two-Sample Assuming Unequal Variances** | |
|  |  |
|  | Variable 1 |
| Mean | 6.957142857 |
| Variance | 0.667226891 |
| Observations | 35 |
| Hypothesized Mean Difference | 7 |
| df | 34 |
| t Stat | -0.310399109 |
| P(T<=t) one-tail | 0.379076151 |
| t Critical one-tail | 1.690924255 |
| P(T<=t) two-tail | 0.758152302 |
| t Critical two-tail | 2.032244509 |
|  |  |
|  |  |

As it is observed from the calculations of hypothesis testing above, the t-statistic value is -0.31 >= -1.69 which is the t-critical value for one tail. Also, the p value for one tail 0.379 > 0.05 (alpha). Thus, we conclude that we fail to reject the null hypothesis. From this we can conclude that there is not enough evidence to claim that the μ < 7 at the significance level (alpha) of 0.05. The potential statistical errors in my sampling can be that my sample size was relatively smaller (35 people) and I used the convenience sampling method. There is also a possibility of Type II error.

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