Name(s)	Project Number
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Project Title

The Effects of the Lunar Cycle on Rates of Fatal Car Accidents

Abstract

Objectives/Goals

There are many superstitions and beliefs that there are, in fact, more car accidents during a full moon. I evaluated whether the moon's effect on drivers is just a myth or actual truth by analyzing data collected from fatal passenger vehicle accident reports to the California Highway Patrol.

Methods/Materials

To complete this experiment, I analyzed data of car accidents during these lunar phases: new moon, first quarter, full moon, and last quarter. I also observed the rest of the days of the year as my control group. I obtained data from the California Highway Patrol which included fatal accidents for all passenger vehicles by specific daily dates for the six years from 1998 to 2003. I compared and analyzed this data using different statistical processes.

Results

This data was categorized into full moon days, last quarter, new moon, first quarter days, and the remaining number of days out of the year (or control group). Each moon phase's measures of central tendencies of number of accidents per day, as well as the measures of variation were quite similar. I performed the Chi Square Test on this set of data, which is a form of evaluating and analyzing data to test a hypothesis. It divides the data into various classes and looks at the proportions of those classes compared to the whole population. After performing this test, I could conclude that the probability that the distribution of daily accident frequencies for full moon days is no different than for all days.

I also performed the Unpaired t Test assuming equal variance to help evaluate my data. The Unpaired t Test is commonly used to compare two samples of different size and to test whether these two samples come from the same population. The results from performing this operation provided the conclusion that it is most probable that the moon really has no influence on number of car accidents.

Conclusions/Discussion

After performing many statistical evalution processes which all reached the same conclusion that there was no influence by the full moon on rates of fatal vehicular accidents, I cannot reject the null hypothesis. The full moon has no influence on rates of fatal car accidents, and therefore the urban myth is false. Thus, the illusion of the moon's effect on rates of car accidents is false, and there is no need to fear driving on full moon days.

Summary Statement

I evaluated whether the superstition of the full moon's effect on rates of car accidents was valid by analyzing six years worth of daily data obtained from the California Highway Patrol of fatal vehicular accidents.

Help Received

I received some assistance on statistical evaluation from my father, but I completed the rest of the experiment solely by myself.