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MTH 332

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Smoking and Non-smoking

Mothers in Birthweight A Report

As Evaluation

Abstract

This study uses statistical methods to determine if the decision to smoke effects birthweight. We use relative statistics to determine causal relationship between the birthweights of smoking and non smoking mothers in California. The writer of this paper uses calculations of standard deviation mean, kurtosis and visualizations of histograms to guide the analysis of this paper.

Intro

The title gives an accurate description of the data as it covers the necessary information in brief. The main points are described brief and succinct. The data was a subset of data, gathered from Child Health and Development Studies the subset was from a place in California. This data could be interpolated to other places given that smoking in this place in California is no different than smoking anywhere else for the most part. Though it would be better to have the full scope of the data. California gives a somewhat good picture.

Methods

This data was collected from the stat labs data set. The variables were directly from the raw data on the sight. The analytic model of a histogram was used to visualize the data grouped in to bins that represent bars on the histogram.

Results

Descriptive statistics of birth-weights for non-smoking mothers:

Minimum = 55

Maximum = 176

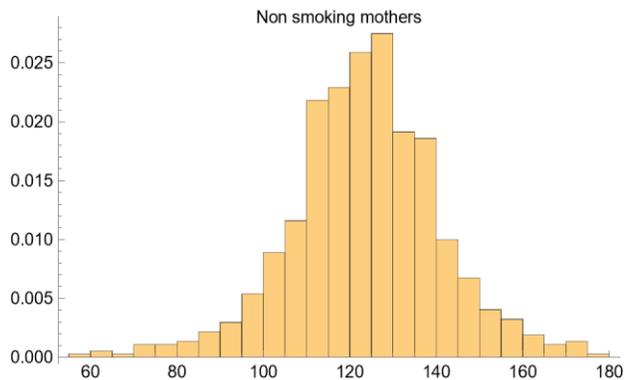
Mean = 123.047

Median = 123

Stdev = 17.3987

Skewness = -0.186984

Kurtosis = 4.03706



Descriptive statistics of birth-weights for smoking mothers:

Minimum = 58

Maximum = 163

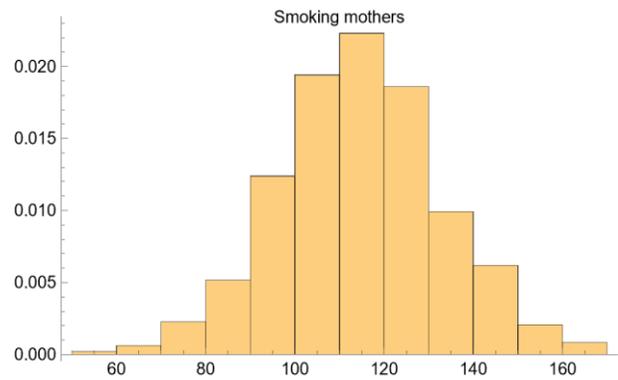
Mean = 114.11

Median = 115

Stdev = 18.0989

Skewness = -0.033595

Kurtosis = 2.98803



Conclusion

The difference in birthweights means is about one Standard deviation of difference, leading one to believe there is not enough difference to count, however one must

take note of the subtlety of the effect that smoking would in theory have, and the large sample size needed to prove something as subtle as such. When considering that subtlety of effect smoking a cigarette would have one would want to see a large sample size (like the data acquired). With a large sample size, you can glean subtle detail like this. The Skewness would show the augment smoking would have if any. In this case it does. The difference in skew in a large sample size (in this case 1000+) is enough to imply a causal relationship between smoking and birthweight. The five-point summary shows a clear raise in birthweight in smoking mothers. All the values are lower than their non-smoking counterparts and this also implies causal relationship.

In the Histogram view the dis-similarity in kurtosis reflects the information we see in the summary statistics. The histogram looks like it was shifted up in the Non-smoking mothers. This again proves the same causal relationship. The min and max are both higher on the non-smoking mothers chart.