Module 03 Lab

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Word Document

**Exercises 1.4, 1.12, 1.34, 2.16, 2.22**

**Exercise 1.4**

1. **Main research question: Does the Buteyko breathing technique reduce asthma symptoms and improve quality of life?**
2. **Subjects are 600 asthma patients aged 18-69**
3. **Did they practice Buteyko method is a nominal categorical variable.**

**Quality of life is a discrete numerical variable.**

**Activity is a discrete numerical variable.**

**Asthma symptoms is a discrete numerical variable.**

**Medication reduction is a discrete numerical variable.**

**Exercise 1.12**

1. **List of variables: year, country, issues, percentage of country that said yes**
2. **Year is an ordinal categorical variable.**

**Country is a nominal categorical variable.**

**Issues is a nominal categorical variable.**

**Percentage of country that said yes is a continuous numerical variable.**

**Exercise 1.34**

1. **This study is an experiment.**
2. **Those instructed to exercise two times a week are the treatment group and those instructed to rest are control groups.**
3. **Yes, this study makes use of blocking. Age is the blocking variable because the study groups individuals into three age groups, then splits each group in half into treatment and control groups.**
4. **No, this study does not make use of blinding. Researchers are very straightforward about stating whether to exercise two times a week or to rest.**
5. **I think the study can establish a causal relationship. More exercise generally leads to better mental health. This can be generalized to a population at large because the sampling was conducted randomly.**
6. **I would have some reservations with this study. I would be worried about other variables that also affect mental health that are being disregarded such as therapy, arts, music, diet, yoga, etc. These factors affect mental healthy and are not being looked at in this study.**

**Exercise 2.16**

1. **The distribution of this data is right skewed. The median is towards the bottom of the data, the median is less than the mean, and the upper quartile is larger than the lower quartile. Since it is skewed data, the median would best represent a typical observation because the mean is heavily influenced by the outliers present. The variability of observations is best represented by IQR because the meaningful number of expensive houses would increase the standard deviation.**
2. **The distribution of this data is symmetric and evenly distributed. That means the mean is equal to the median. Since it is symmetric, the mean would best represent a typical observation of data. The variability of observations is best represented by the standard deviation due to symmetric distribution. Plus, there are no major outliers.**
3. **The distribution of this data is right skewed. Since most of the students do not drink because they are under the age of 21, the masses will be closer to 0 or 1 drink per week. Since the data is skewed, the median will best represent a typical observation and IQR will best represent the variability.**
4. **The distribution of this data is right skewed. More employees make much less than the high-level executives. Since it is skewed, the median will best represent a typical observation and the IQR will best represent the variability.**

**Exercise 2.22**

1. **372/910 = 40.9% of voters identify themselves as conservatives.**
2. **278/910 = 30.5% of voters are in favor of citizenship option.**
3. **57/910 = 6.3% of voters are conservative and are in favor of the citizenship option.**
4. **57/372 = 15.3% of conservative voters are in favor of citizenship option.**

**120/363 = 33.1% of moderate voters are in favor of citizenship option.**

**101/175 = 57.7% of liberal voters are in favor of citizenship option.**

1. **Political ideology and views of immigration appear to be dependent. Ultimately, views on immigration depend on where you stand politically.**