Case Study with Data Applications

YOUR NAME

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Exercises

Load `tidyverse`,`mosaic`, and `knitr` packages.

Use this file as your R Markdown file.

```
library(tidyverse)
library(mosaic)
library(knitr)
```

1. **Stent study continued**. Complete a similar analysis for the stent data but this time for the one year data. In particular

a. Read the data into your working directory.

b. Complete similar steps as in the class notes.
i. Use `inspect` on the data. ii. Create a table of `outcome365` and `group`. iii. Create a barchart of the data.

2. **Migraine and acupuncture**. A migraine is a particularly painful type of headache, which patients sometimes wish to treat with acupuncture. To determine whether acupuncture relieves migraine pain, researchers conducted a randomized controlled study where 89 females diagnosed with migraine headaches were randomly assigned to one of two groups: treatment or control. 43 patients in the treatment group received acupuncture that is specifically designed to treat migraines. 46 patients in the control group received placebo acupuncture (needle insertion at nonacupoint locations). 24 hours after patients received acupuncture, they were asked if they were pain free.[1]

The data is in the file `migraine_study.csv` in the folder `data`.

Complete the following work:

a. Read the data an object called `migraine_study`.

b. Create a table of the data.

c. Report the percent of patients in the treatment group who were pain free 24 hours after receiving acupuncture.

d. Repeat for the control group.

[1] G. Allais et al. "Ear acupuncture in the treatment of migraine attacks: a randomized trial on the efficacy of appropriate versus inappropriate acupoints". In: Neurological Sci. 32.1 (2011), pp. 173–175.

e. At first glance, does acupuncture appear to be an effective treatment for migraines? Explain your reasoning.

f. Do the data provide convincing evidence that there is a real pain reduction for those patients in the treatment group? Or do you think that the observed difference might just be due to chance?

3. Compile, `knit`, this report into a pdf.

We are documenting the packages we are using.

File Creation Information

- File creation date: 2020-08-13
- Windows version: Windows 10 x64 (build 18362)
- R version 3.6.3 (2020-02-29)
- `mosaic` package version: 1.7.0
- `tidyverse` package version: 1.3.0