R Notebook

Code

Emily Chu: Assignment 4

Data frame for this assignment: lowbwt

1. List the level of measurement for each of the following variables:

a. LOW: ordinal-level
b. AGE: interval-ratio
c. the new categorical LWT variable that you created in the last assignment: ordinal-level

2. Conduct the appropriate hypothesis test to determine if there is a difference in mother's weight in pounds at the last menstrual period between those who had a low birth weight baby and those who did not.

a. Use variables at the appropriate level of measurement. LWT(y): interval-ratio LOW(x): weight at last menstrual period
b. Show R syntax.
c. Show results table.
d. Report technical results.
e. Comment on the implications of the result of the test.

LOW <int>	LWT <dbl>
0	133.3000
1	122.1356

2 rows

Hide

```
t.test(LWT~LOW,lowbwt)
```

```
    Welch Two Sample t-test

data:  LWT by LOW
t = 2.5155, df = 132.46, p-value = 0.01308
alternative hypothesis: true difference in means is not equal to 0
95 percent confidence interval:
  2.38552 19.94329
sample estimates:
mean in group 0 mean in group 1
       133.3000        122.1356
```

Technical Results: The result is statistically significant for t(132.46)=2.5155 at a p-value of 0.01308 with more low birth weight babies coming from mothers with lower weight at the last menstrual period.

Implications of Results: In groups of mothers with a mean weight of around 122 lbs at last menstrual period, you can expect more low birth weight babies than in groups of mothers with a mean weight of around 133 lbs at last menstrual period.

3. Conduct the appropriate hypothesis test to determine if there is a difference in the birth weight of the baby between those who smoked during pregnancy and those who did not.

a. Use variables at the appropriate level of measurement. BWT(y): interval-ratio SMOKE(x): ordinal-level
b. Show R syntax.
c. Show results table.
d. Report technical results.
e. Comment on the implications of the result of the test.

SMOKE <int>	BWT <dbl>
0	3054.957
1	2773.243

2 rows

Hide

```
t.test(BWT~SMOKE,lowbwt)
```

```
    Welch Two Sample t-test

data:  BWT by SMOKE
t = 2.7095, df = 170, p-value = 0.00743
alternative hypothesis: true difference in means is not equal to 0
95 percent confidence interval:
  76.46677 486.95979
sample estimates:
mean in group 0 mean in group 1
       3054.957        2773.243
```

Technical Results: The result is statistically significant for t(170)=2.7095 at a p-value of 0.00743 with babies seeing a lower birth weight in grams from mothers who smoke.

Implications of Results: You can expect a significantly lower baby birth weight on average from mothers who smoke than from mothers who don't smoke.

4. If you wanted to conduct a two-sample hypothesis test, but both of your variables were interval- ratio, which of the following tasks would you need to complete in order to be able to conduct the test? Select only one answer:

b. Recode the independent variable into a nominal or ordinal variable.

Submit your work in both HTML file and PDF file (open the HTML file and choose print then save as PDF).