Results

Results

In this section, we will present our analysis results using data from a study on volunteering. This data is available in the car data package.

Descriptive statistics and plots

First, we will look at descriptive statistics and visualizations of the data.

```
Cowles %>%
  group_by(sex, volunteer) %>%
  tally() %>%
  group_by(sex) %>%
  mutate(Percent = n/sum(n)*100) %>%
  kable(digits=2)
```

sex	volunteer	n	Percent
female	no	431	55.26
female	yes	349	44.74
male	no	393	61.31
male	yes	248	38.69

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et iaculis urna. Nam lacus velit, posuere sit amet facilisis in, mattis eleifend tellus.
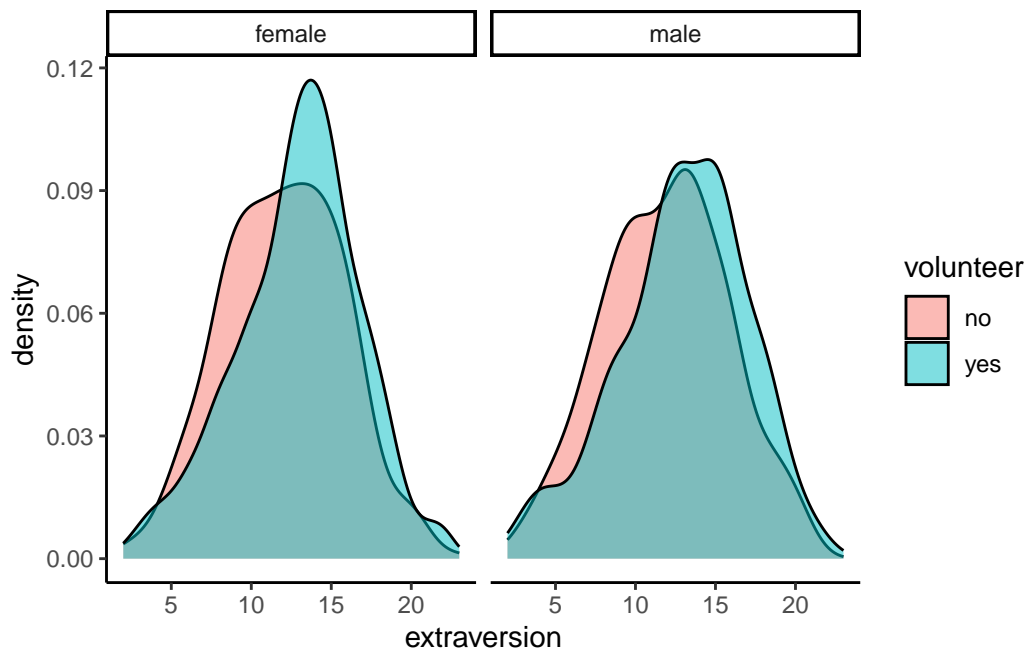
```
Cowles %>%
  group_by(volunteer) %>%
  summarize(Neuroticism_Avg = mean(neuroticism),
            Neuroticism_SD = sd(neuroticism),
            Extraversion_Avg = mean(extraversion),
            Extraversion_SD = sd(extraversion)) %>%
  kable(digits=2)
```

Table 2: Average personality scores by volunteering

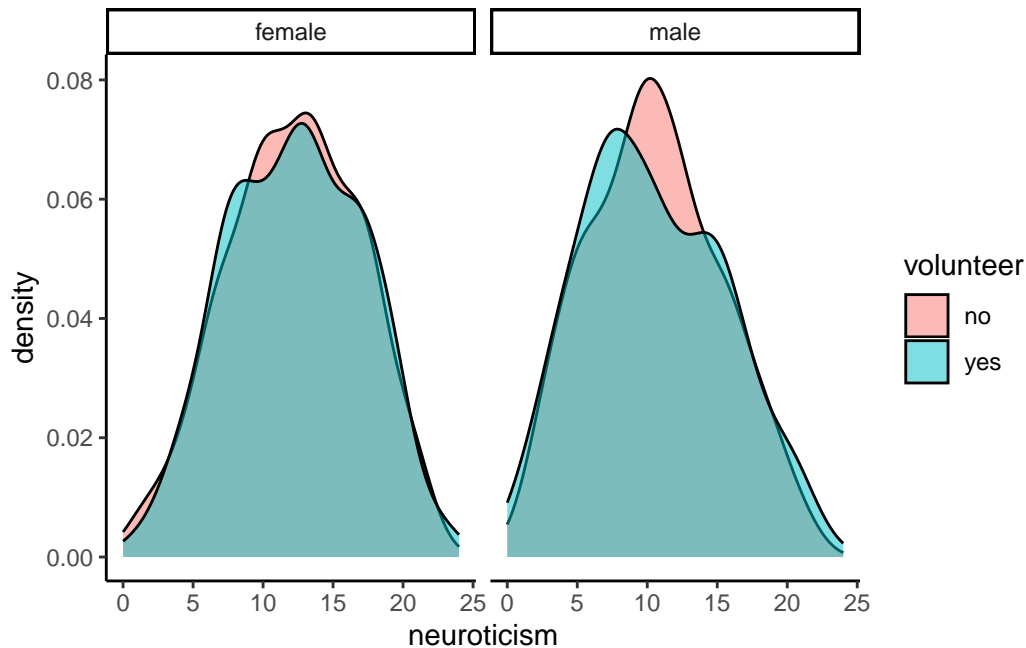| volunteer	Neuroticism_Avg	Neuroticism_SD	Extraversion_Avg	Extraversion_SD
no	11.42	4.82	11.96	3.83
yes	11.54	5.00	12.94	3.91

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```
Cowles %>%
  ggplot(aes(x=extraversion, fill=volunteer)) +
  geom_density(alpha=.5) +
  facet_wrap(~sex)+
  theme_classic()
```

```
Cowles %>%
  ggplot(aes(x=neuroticism, fill=volunteer)) +
  geom_density(alpha=.5) +
  facet_wrap(~sex)+
  theme_classic()
```

Figure 1: Distribution of neuroticism scores by volunteer status and sex.

Do personality scores differ for those who do and do not volunteer?

Independent t-tests were used to determine whether personality scores differed by whether participants volunteered or not.

```
extrat <-t.test(extraversion ~ volunteer, data=Cowles)
neurot <- t.test(neuroticism ~ volunteer, data=Cowles)
```

Extraversion differed between those who volunteered. As shown in the table above, volunteers were more extraverted on average than those who did not volunteer.

However, scores on neuroticism did not differ between groups.

What is the relationship between extraversion and neuroticism in this sample?

Do these scores correlate in this sample in the same way for volunteers and non-volunteers?

```
Cowles %>%
  ggplot(aes(x=extraversion, y=neuroticism)) +
  geom_point(aes(color=volunteer), position=position_jitter(width = .5, height=.5)) +
```

```
    geom_smooth(method="lm", aes(color=volunteer), se=FALSE) +
    theme_classic()
```
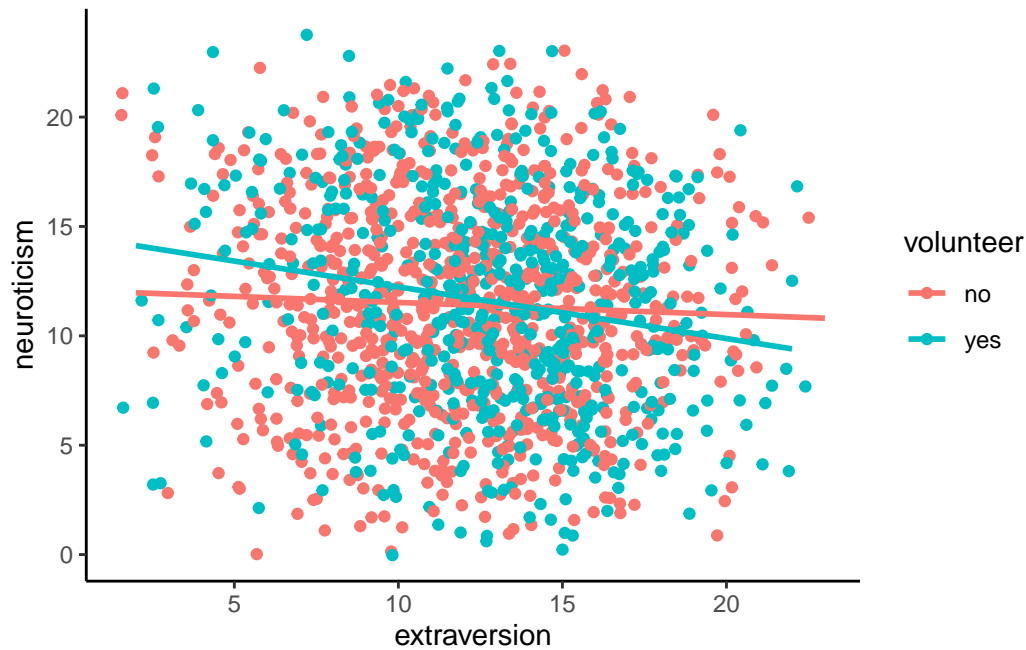
`geom_smooth()` using formula = 'y ~ x'

Figure 2: Relationship between extraversion and neuroticism in the sample.

```
lmtest <- lm(neuroticism ~ extraversion * volunteer, data = Cowles)

summary(lmtest)
```

Call: lm(formula = neuroticism ~ extraversion * volunteer, data = Cowles)

Residuals: Min 1Q Median 3Q Max -12.2366 -3.5843 -0.1939 3.6400 11.9436

Coefficients: Estimate Std. Error t value $Pr(>|t|)$
(Intercept) 12.07992 0.55551 21.746 < 2e-16 * **extraversion -0.05538 0.04422 -1.252 0.21070**
volunteeryes 2.51709 0.88529 2.843 0.00453 extraversion:volunteeryes -0.18066 0.06750 -2.676 0.00753 **

Signif. codes: 0 '*** 0.001 ** 0.01 * 0.05 '. 0.1 ' ' 1

Residual standard error: 4.865 on 1417 degrees of freedom Multiple R-squared: 0.01612, Adjusted R-squared: 0.01404 F-statistic: 7.739 on 3 and 1417 DF, p-value: 3.967e-05

Conclusions

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