Results

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In this section, we will present our analysis results using data from a study on volunteering (Cowles and Davis 1987). This data is available in the (Fox, Weisberg, and Price 2022) package.

Descriptive statistics and plots

Number of Volunteers by binary sex variable:

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

Table 1: Volunteering Counts by Sex

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

Average and SD of personality scores by volunteering.

```
Cowles %>%
  group_by(volunteer) %>%
```

```
  summarize(Neuroticism_Avg = mean(neuroticism),
            Neuroticism_SD = sd(neuroticism),
            Extraversion_Avg = mean(extraversion),
            Extraversion_SD = sd(extraversion)) %>%
  kable(digits=2)
```

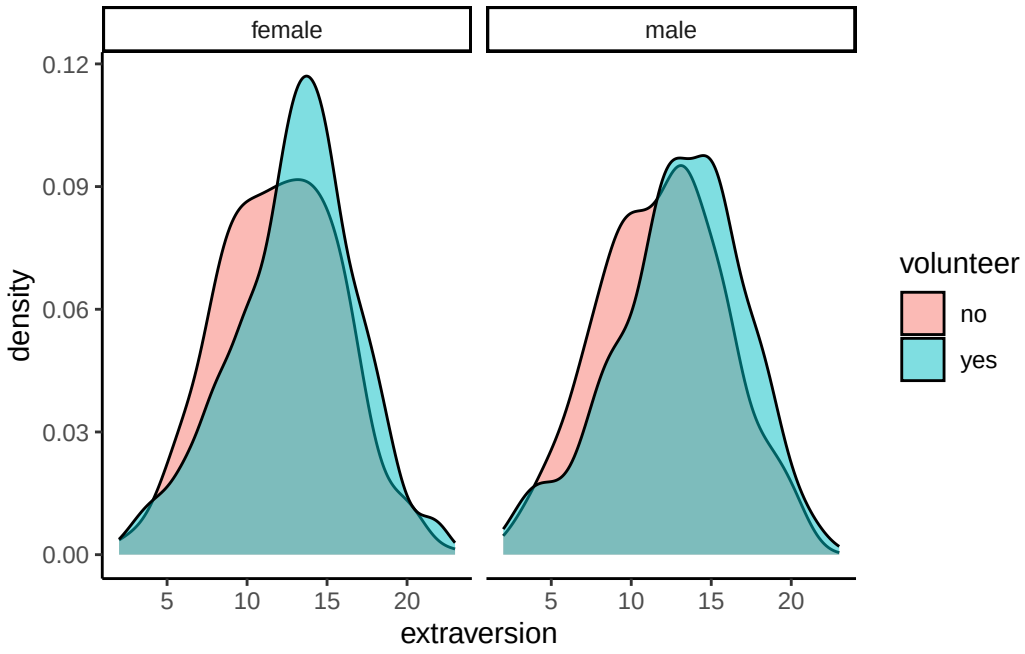
Table 2: Average personality scores by volunteering

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

Look at the distribution of data

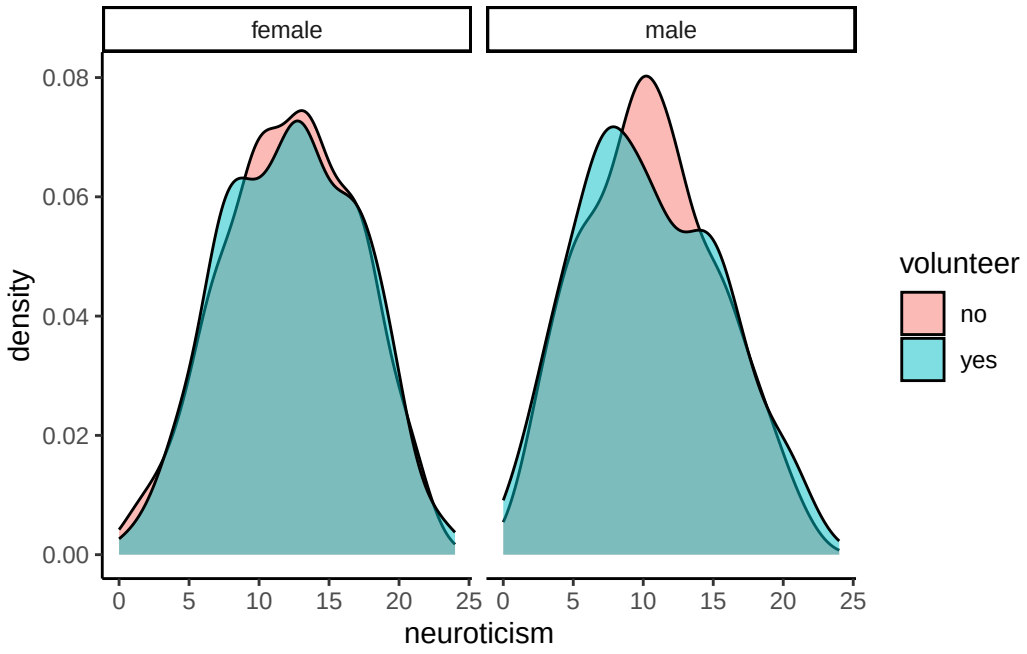
```
#|label: fig-extraversionbysexvol
#|fig-cap: Distribution of extraversion scores by volunteer status and sex
#|fig-cap-location: bottom

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




```
#|label: fig-neuroticismbysexvol
#|fig-cap: Distribution of neuroticism scores by volunteer status and sex
#|fig-cap-location: bottom

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



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

Extraversion differed between those who volunteered ($\Delta M = -0.98$, 95% CI $[-1.39, -0.57]$, $t(1270.12) = -4.69$, $p < .001$). However, scores on neuroticism did not differ between groups ($\Delta M = -0.13$, 95% CI $[-0.64, 0.39]$, $t(1256.24) = -0.47$, $p = .636$).

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()
```

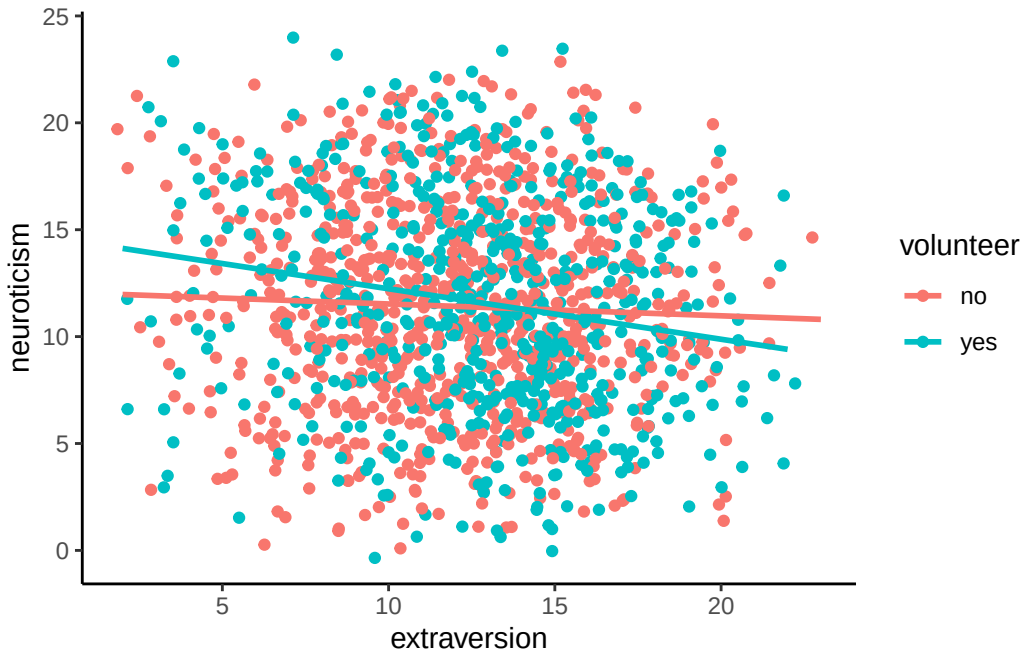


Figure 1: Relationship between extraversion and neuroticism in the sample.

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

lmtest$table %>%
  kable(col.names = c("Predictor", "$b$", "95\\% CI", "$t$", "$\\mathit{df}$", "$p$"))
```

Predictor	b	95% CI	t	df	p
Intercept	12.08	[10.99, 13.17]	21.75	1417	$< .001$
Extraversion	-0.06	[-0.14, 0.03]	-1.25	1417	.211
Volunteeryes	2.52	[0.78, 4.25]	2.84	1417	.005
Extraversion × Volunteeryes	-0.18	[-0.31, -0.05]	-2.68	1417	.008

References

Cowles, Michael, and Caroline Davis. 1987. "The Subject Matter of Psychology: Volunteers." *British Journal of Social Psychology* 26 (2): 97–102. https://doi.org/10.1111/j.2044-8309.1987.tb00769.x.

Fox, John, Sanford Weisberg, and Brad Price. 2022. "carData: Companion to Applied Regression Data Sets." https://CRAN.R-project.org/package=carData.