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 car data package (Fox, Weisberg, and Price 2022).

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

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

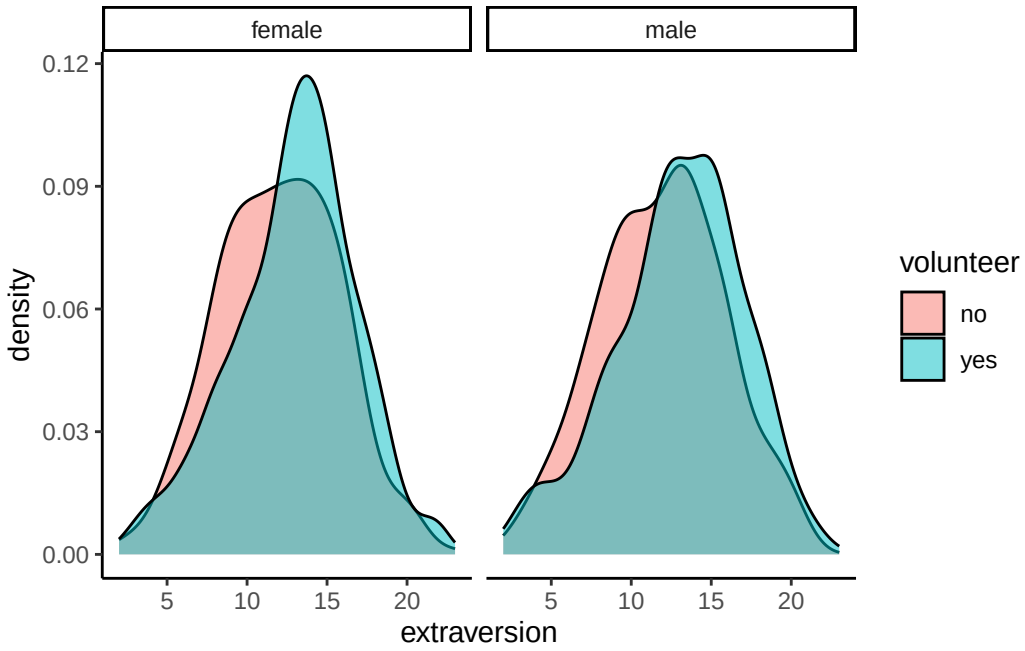

Figure 1: Distribution of extraversion scores by volunteer status and sex.

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

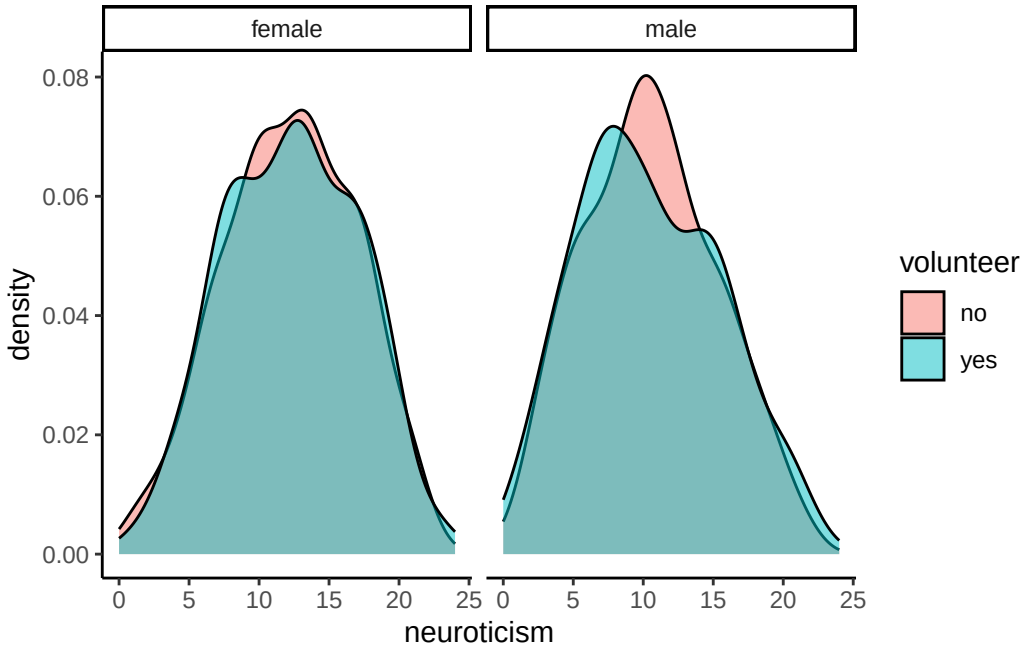

Figure 2: Distribution of neuroticism scores by volunteer status and sex.

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.

```r
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()
```

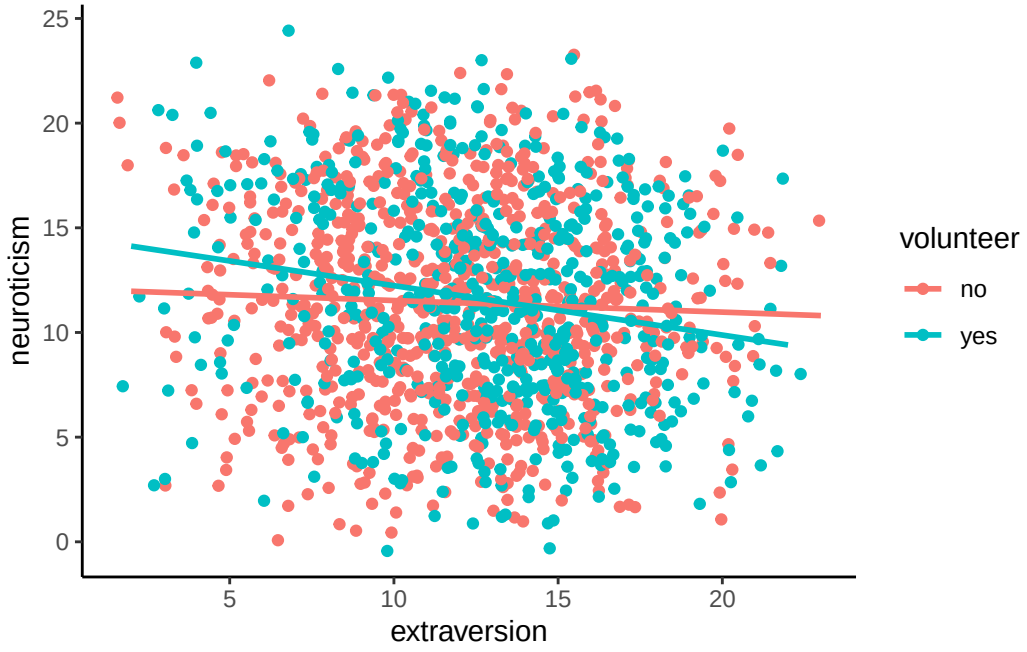

Figure 3: Relationship between extraversion and neuroticism in the sample.

```
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

Predictor	*b*	95% CI	*t*	*df*	*p*

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.