

## **SAMPLE** RStudio lab assignment: visualization



[\[How to submit an assignment\]](#)

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[\[Variables in GSS\]](#)

**Note:** Do not run or interpret the analyses without opening [\[Variables in GSS\]](#) file, using "What it measures" columns, reading variable type, how the questions were asked, and the response sets.

## Assignment instructions

In this assignment, you will follow the procedures for visualizing different graphs.

Paste the specific codes you used for each question. When I run the codes you pasted below, it should generate the tables/analyses on my end.

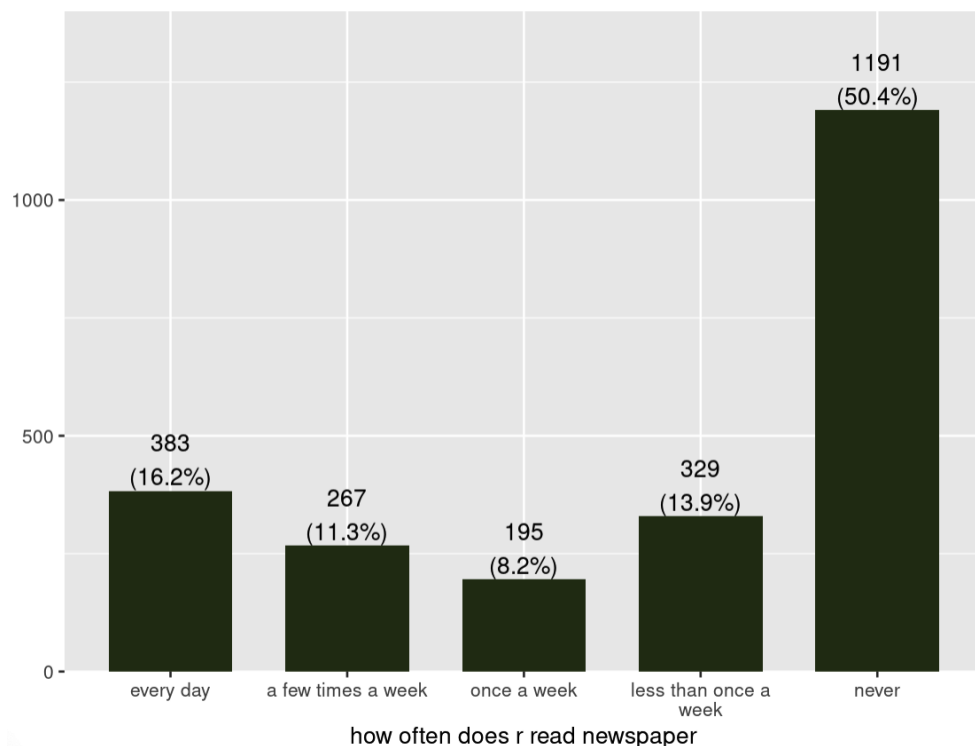
- 1) Create a bar graph for **news** and change the color (go to <https://coolours.co/palettes/trending>), and interpret the bars (Same as frequency table interpretation).

**[graph: 5 points; interpretation: 5 points; changed color: 5 points]**

**Code (-5):**

```
plot_frq(gss$news, type = "bar", geom.colors = "#283618")
```

**Graph:**



**Interpretation:**

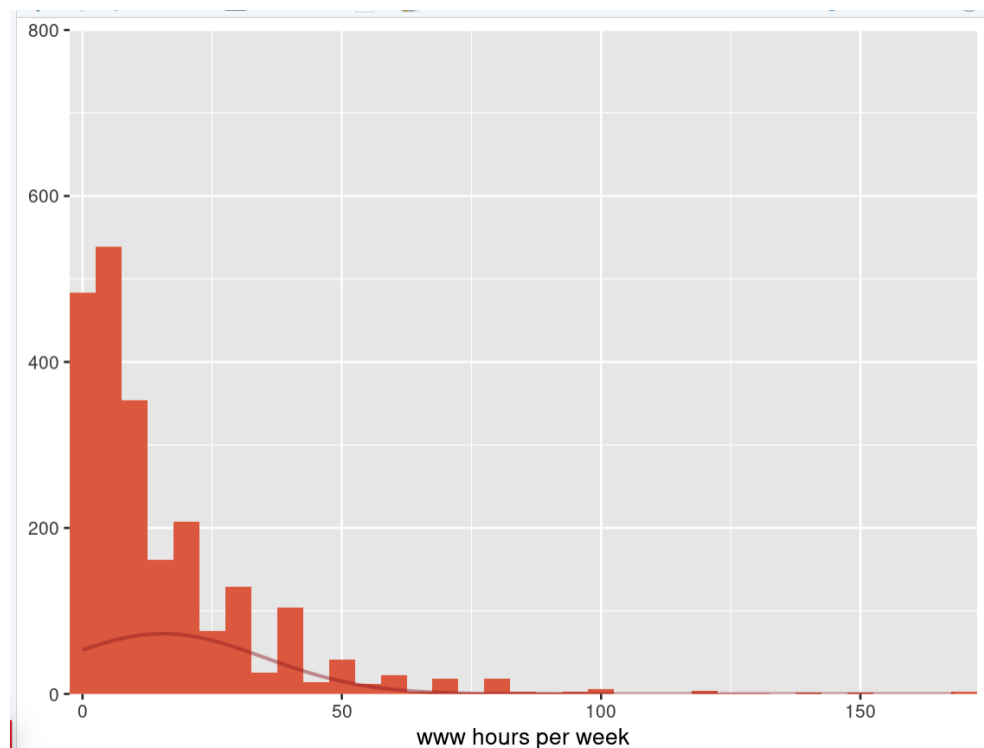
The the level of reading newspaper variable shows that 16.2% of the respondents read newspaper everyday; 11.3% of the respondents read newspaper a few times a week; 8.2% of the respondents read newspaper once a week; 13.9% of the respondents read newspaper less than once a week; 50.4% of the respondents never read newspaper.

- 2) Create a histogram for **wwwhr** and change the color (go to <https://coolours.co/palettes/trending>). It must be a different color than the bar graph and the original color on the script file.

**[graph: 10 points, changed color: 5 points]**

**Code (-5):**

```
plot_frq(gss$wwwhr, type = "hist",  
geom.colors = "#e76f51",  
normal.curve = TRUE,  
normal.curve.color = "#9b2226")
```

**Graph:**

### 3) Create a stacked bar graph for multiple variables.

Use the following variables: *Do you strongly agree, agree, disagree, or strongly disagree with each of these statements:* ***myskills*** (My job lets me use my skills and abilities), ***respect*** (At the place where I work, I am treated with respect), ***trustman*** (I trust the management at the place where I work).

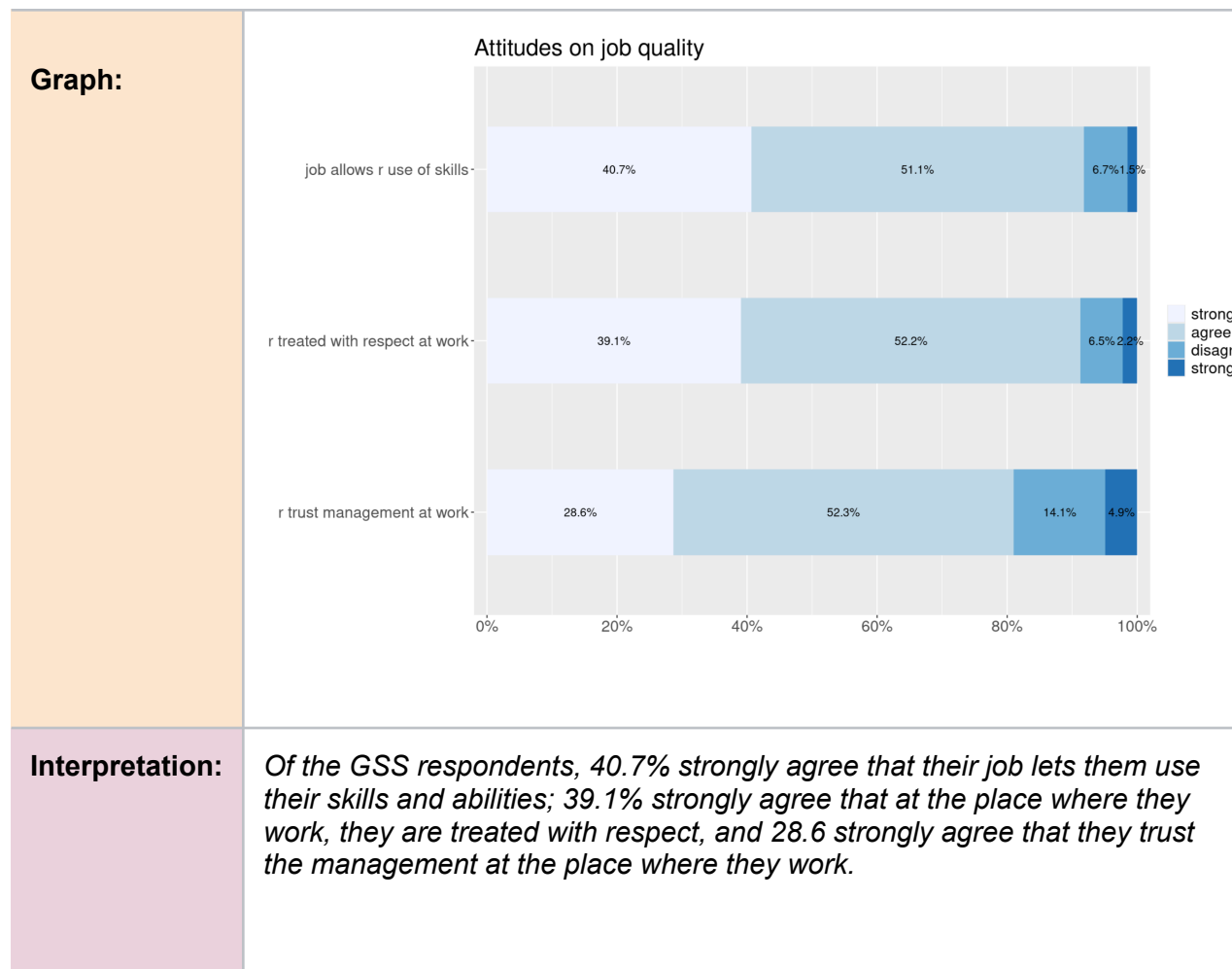
Change the title of the graph to “*Attitudes on job quality.*”

- change font size of x-axis labels to 15
- change font size of y-axis labels to 15
- change font size of plot title to 22
- change font size of legend to 15

Interpret the percentages of “strongly agree.” [graph: 5 points; interpretation: 3 points - interpret “strongly agree” category; title changed: 3 points; font sizes changed: 4 points]

**Code (-5):**

```
graph <- gss %>% select (myskills, respect, trustman) %>%  
  plot_stackfrq(sort.frq = "first.asc", coord.flip = TRUE, geom.colors =  
    "Blues", show.total = FALSE,  
    title = "Attitudes on job quality")  
graph + theme( axis.text.x = element_text(size=15), # change font size of  
  x-axis labels  
    axis.text.y = element_text(size=15), # change font size of y-axis  
  labels  
    plot.title=element_text(size=22), # change font size of plot title  
    legend.text = element_text(size=15)) # change font size of  
  legend
```



4) Create a stacked bar graph by different groups.

4a) First, recode **educ** into three categories. The new variable name will be **educgroups**

- 0 to 10 will be 1 [low education]
- 11 to 12 will be 2 [moderate education]
- 13 to 20 will be 3 [high education]

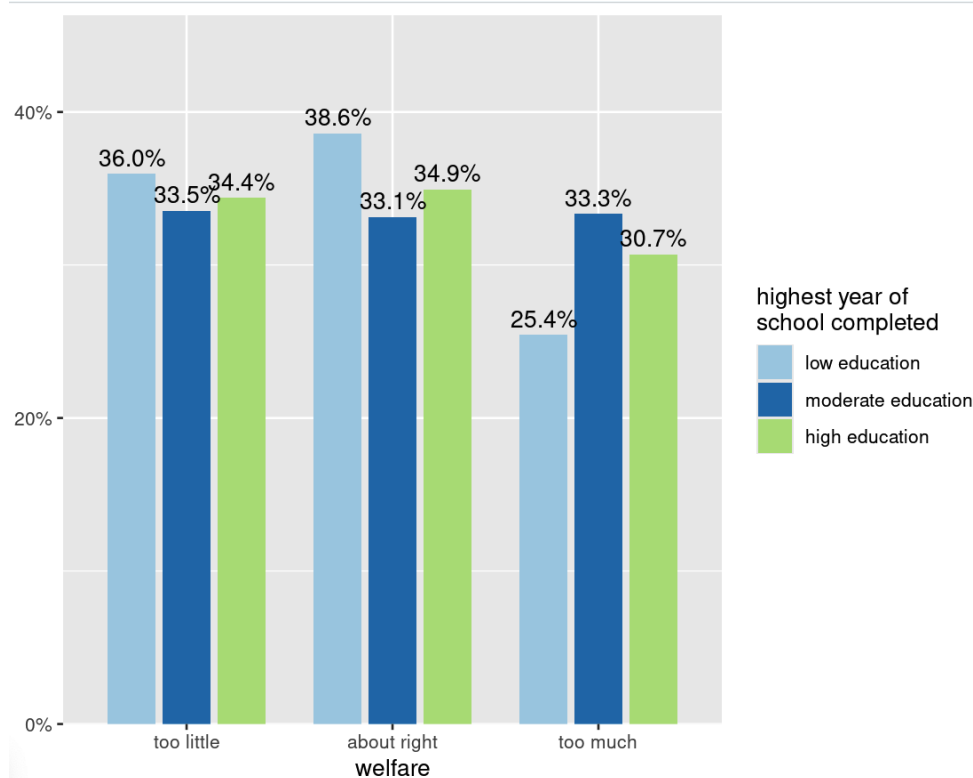
|                          |                                                                                                                                                               |
|--------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <p><b>Code (-5):</b></p> | <pre>gss\$educgroups &lt;- rec(gss\$educ, rec =   "0:10=1 [low education];   11:12=2 [moderate education];   13:20=3 [high education]", append = FALSE)</pre> |
|--------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------|

4b) Then, create a stacked bar graph by different groups by using ***natfare*** and ***educgroups***. Paste the graph and interpret the “**too much**” category by the new (recoded) education group categories. **[graph: 10 points, interpretation: 5 points - interpret “too much” category]**

**Code (-5):**

```
plot_xtab(gss$natfare, gss$educgroups, show.total=FALSE, show.n = FALSE)
```

**Graph:**



**Interpretation:**

*Of the GSS respondents, 25.4% of the low education group, 33.3% of the moderate education group, 30.7% of the high education group reported that we spend too much on government spending for welfare.*

5) Create a scatterplot.

5a) First, create a frequency table of **relpersn** [table: 5 points]

|                                                                |                                                               |                      |      |         |           |         |
|----------------------------------------------------------------|---------------------------------------------------------------|----------------------|------|---------|-----------|---------|
| Code (-5):                                                     | frq(gss\$relpersn, out = "v")                                 |                      |      |         |           |         |
| Table:                                                         | <b>r consider self a religious person (x) &lt;numeric&gt;</b> |                      |      |         |           |         |
|                                                                | val                                                           | label                | frq  | raw.prc | valid.prc | cum.prc |
|                                                                | 1                                                             | very religious       | 488  | 13.77   | 13.93     | 13.93   |
|                                                                | 2                                                             | moderately religious | 1124 | 31.72   | 32.08     | 46.00   |
|                                                                | 3                                                             | slightly religious   | 841  | 23.73   | 24.00     | 70.01   |
|                                                                | 4                                                             | not religious at all | 1051 | 29.66   | 29.99     | 100.00  |
|                                                                | NA                                                            | NA                   | 40   | 1.13    | NA        | NA      |
| total N=3544 · valid N=3504 · $\bar{x}$ =2.70 · $\sigma$ =1.04 |                                                               |                      |      |         |           |         |

5b) Then, recode **relpersn** so that high values will indicate high levels of subjective religiosity. The new variable name will be **relpersnreversed**. Use **relpersnreversed** in the scatter plot below [recoding: 10 points].

- 1 will 4 [very religious]
- 2 will 3 [moderately religious]
- 3 will 2 [slightly religious]
- 4 will 1 [not religious at all]

|            |                                                                                                                                                                                                                                                                                                       |
|------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Code (-5): | <pre>gss\$relpersnreversed &lt;- rec(gss\$relpersn, rec =                            "1=4 [very religious];                            2=3 [moderately religious];                            3=2 [slightly religious];                            4=1 [not religious at all]", append = FALSE)</pre> |
|------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|

5c) Create a scatterplot by using ***relpersnreversed*** and ***age*** by ***race***. (scatterplot with two continuous variables by groups). Change the title of the scatterplot to “*The effect of age on the level of subjective religiosity by race*”. Paste the graph **[graph: 25 points]**

**Code (-5):**

```
plot_scatter(gss, relpersnreversed, age, race, jitter = TRUE,  
             fit.grps = lm, show.ci = TRUE, grid = TRUE,  
             title = "The effect of age on the level of subjective religiosity by  
             race")
```

**Graph:**

