Working_with_Data

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0.1 Packages & library

```
library(tidyverse)
```

```
-- Attaching core tidyverse packages ------------------------ tidyverse 2.0.0 --
v dplyr     1.1.4     v readr     2.1.5
v forcats   1.0.0     v stringr   1.5.1
v ggplot2   3.5.1     v tibble    3.2.1
v lubridate 1.9.4     v tidyr     1.3.1
v purrr     1.0.4
-- Conflicts ------------------------------------------ tidyverse_conflicts() --
x dplyr::filter() masks stats::filter()
x dplyr::lag()    masks stats::lag()
i Use the conflicted package (<http://conflicted.r-lib.org/>) to force all conflicts to become errors
```

```
library(descr)
library(knitr)
library(dplyr)
library(Hmisc)
```

```
Attaching package: 'Hmisc'

The following objects are masked from 'package:dplyr':

    src, summarize

The following objects are masked from 'package:base':

    format.pval, units
```

```
library(readr)
library(readxl)
library(ggplot2)
```

0.2 Load

```
Project_Data = read.csv("/cloud/project/Data/Connection_to_Nature_Data.csv",
header = TRUE)
```

0.3 Variables

```r
# VARIABLE 1: People's Age


# age 18 and above

Project_Data <- subset(Project_Data, D_Age >= 18)

# Group D_Age into 4 age range's and Labeling

Project_Data$Age_Group <- cut(Project_Data$D_Age,
                              breaks = c(18, 25, 40, 65, Inf),
                              labels = c("18-25", "26-40", "40-65", "65+"),
                              right = TRUE)
                              include.lowest = TRUE

# Frequency table

freq(as.ordered(Project_Data$Age_Group),plot =FALSE)
```

```
as.ordered(Project_Data$Age_Group)
      Frequency Percent Valid Percent Cum Percent
18-25        43   8.350         8.448       8.448
26-40        85  16.505        16.699      25.147
40-65       301  58.447        59.136      84.283
65+          80  15.534        15.717     100.000
NA's          6   1.165
Total       515 100.000       100.000
```

I choose this variable (age) because I think it would be important to look at in reference to how loneliness and time spent in nature varies among age groups. Perhaps depending on the age group, there will be more positive benefits to those exposed to nature in relation to loneliness.

```r
# VARIABLE 2: How many hours on average do you currently spend in nature per week?

# Group D_hours into 4 categories & Labeling

Project_Data$Nature_Hours_Group <- cut(Project_Data$D_hours,
                                       breaks = c(0, 5, 15, 30, Inf),
                                       labels = c("Low (0-5)", "Moderate (6-15)", "High (16-30)", "Very High (30+)"),
                                       include.lowest = TRUE)

# Frequency table

freq(as.ordered(Project_Data$Nature_Hours_Group), plot = FALSE)
```

```
as.ordered(Project_Data$Nature_Hours_Group)
               Frequency Percent Cum Percent
Low (0-5)            137  26.602       26.60
Moderate (6-15)      230  44.660       71.26
High (16-30)         118  22.913       94.17
Very High (30+)       30   5.825      100.00
Total                515 100.000
```

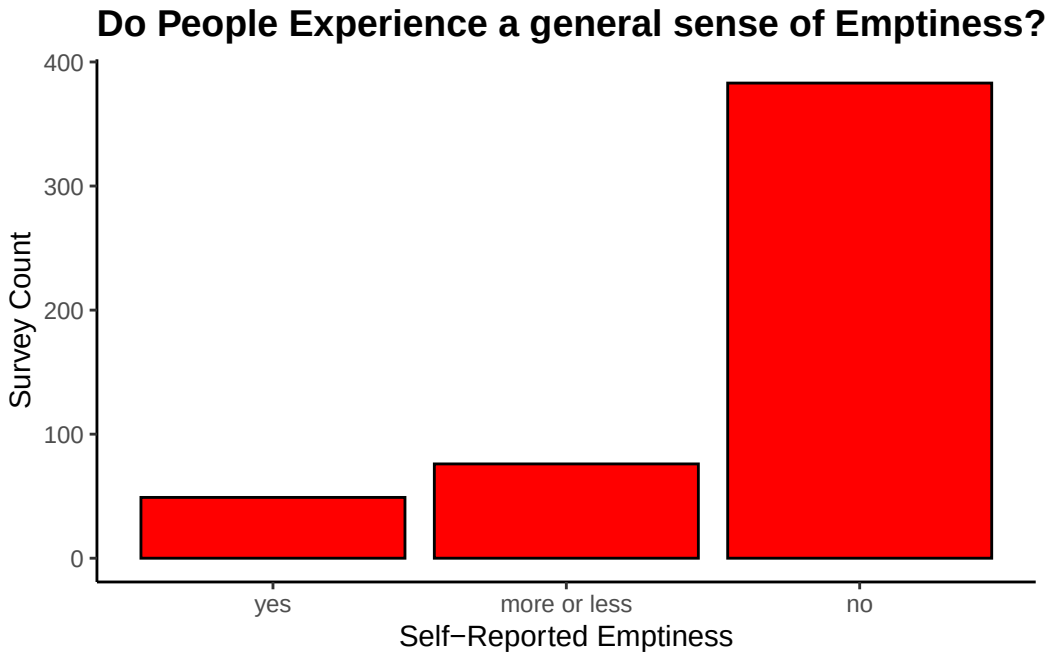
This is very important. This variable (hours spent in nature) is important because when I did the literature review assignment, depending on the time spent in nature, actually lowered both social loneliness and emotional loneliness, but it depends how much time was spent in nature.

```r
# VARIABLE 3: People's experience a general sense of emptiness (survey response)

# Labeling

Project_Data$Lon_1 <- factor(Project_Data$Lon_1,
                             levels = c(1, 2, 3),
                             labels = c("yes", "more or less", "no"))
```

```r
# Frequency Table

freq(as.ordered(Project_Data$Lon_1), plot = FALSE)
```

```
as.ordered(Project_Data$Lon_1)
             Frequency Percent Valid Percent Cum Percent
yes                 49   9.515         9.646       9.646
more or less        76  14.757        14.961      24.606
no                 383  74.369        75.394     100.000
NA's                 7   1.359
Total              515 100.000       100.000
```

```r
# Bar graph

ggplot(data = subset(Project_Data, !is.na(Lon_1)), aes(x = Lon_1)) +
  geom_bar(fill = "red", color = "black") +
  xlab("Self-Reported Emptiness") +
  ylab("Survey Count") +
  ggtitle("Do People Experience a general sense of Emptiness?") +
  theme_classic() +
  theme(plot.title = element_text(size = 14, face = "bold"))
```

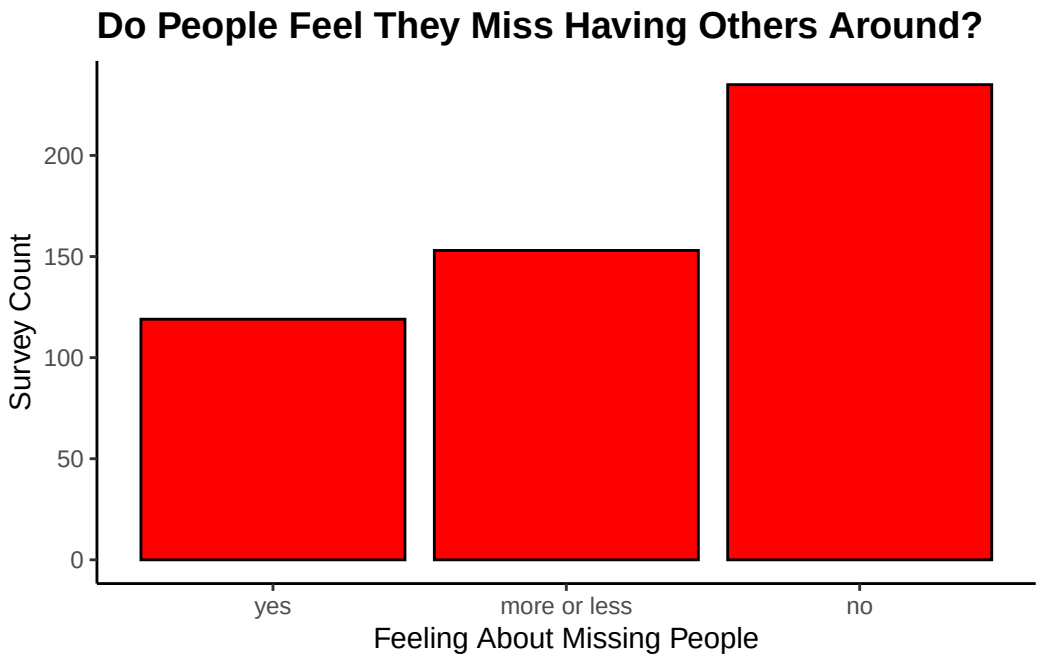


- Lit Review Assign: I choose this variable (people's sense of emptiness) because this can be a reason for social/emotional loneliness. If time spent nature is associated with lower loneliness on these two paths, we might also see a decrease in emptiness to those who spend more time in nature.
- Univariate Data Visualization Assign: The first graph illustrates people's experiences of a general sense of emptiness. Overall, most respondents said no, while the fewest number of respondents said yes.

```r
# VARIABLE 4: I miss having people around (survey response)

# Labeling

Project_Data$Lon_4 <- factor(Project_Data$Lon_4,
                             levels = c(1, 2, 3),
                             labels = c("yes", "more or less", "no"))

# Frequency Table

freq(as.ordered(Project_Data$Lon_4), plot = FALSE)
```

```
as.ordered(Project_Data$Lon_4)
             Frequency Percent Valid Percent Cum Percent
yes                119  23.107         23.47       23.47
more or less       153  29.709         30.18       53.65
no                 235  45.631         46.35      100.00
NA's                 8   1.553
Total              515 100.000        100.00
```

```
# Bar graph

ggplot(data = subset(Project_Data, !is.na(Lon_4)), aes(x = Lon_4)) +
  geom_bar(fill = "red", color = "black") +
  xlab("Feeling About Missing People") +
  ylab("Survey Count") +
  ggtitle("Do People Feel They Miss Having Others Around?") +
  theme_classic() +
  theme(plot.title = element_text(size = 14, face = "bold"))
```



- Lit Review Assign: This variable (missing social interaction) could be important because social loneliness is being examined here. Comparing this to time spent in nature can help show whether nature can also regulate/help social loneliness as well.
- Univariate Data Visualization Assign: The second graph illustrates people's survey responses to whether individuals feel that they miss others in their lives. This is similar to the first graph. Most respondents said no, while the fewest number of respondents said yes.

```
# VARIABLE 5: I have high self-esteem (survey response)

# Labeling

Project_Data$SE_1 <- factor(Project_Data$SE_1,
                            levels = c(1, 2, 3, 4, 5),
                            labels = c("not very true of me", "2", "3", "4", "very true of me"),
                            ordered = TRUE)

# Frequency table

freq(as.ordered(Project_Data$SE_1), plot = FALSE)
```

```
as.ordered(Project_Data$SE_1)
                  Frequency Percent Cum Percent
```

not very true of me	35	6.796	6.796
2	69	13.398	20.194
3	146	28.350	48.544
4	193	37.476	86.019
very true of me	72	13.981	100.000
Total	515	100.000	

Lastly, I also choose this variable (people's self-esteem) because those who experience loneliness and spend little time in nature differ from those who don't feel loneliness and do spend time in nature. Perhaps those who do spend more time have higher level's of agreement to self-esteem compared to those who do not.