Data Managment

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0.1 Quarto

Quarto enables you to weave together content and executable code into a finished document. To learn more about Quarto see https://quarto.org.

0.2 Running Code

When you click the **Render** button a document will be generated that includes both content and the output of embedded code. You can embed code like this:

```
1 + 1
```

```
[1] 2
```

You can add options to executable code like this

```
[1] 4
```

The `echo: false` option disables the printing of code (only output is displayed).

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 beco
```

```
library(descr)
library(knitr)
library(dplyr)
library(readr)
library(readxl)
library(ggplot2)
```

2 Load

```
file.path <- "/cloud/project/Data/Dataset.csv"
Dataset.csv <-read.csv(file.path)
head(Dataset.csv)
```

```
  S.NoSort.column Case.Identification.Number CONTROL..COMPLETES.1.PHONE.2....
1              NA          CASEIDSort column                   MODESort column
2               1                           1                         (2) Mail
3               2                           2                          (9) Web
```

```
4                3                          3                          (9) Web
5                4                          4                          (9) Web
6                5                          5                        (1) Phone
  CENSUS.STATE.FIPS.CODES.LABE.... Added..Census.Region Added..Census.Division
1                STFIPSSort column    REGIONSort column    DIVISIONSort column
2                    (51) VIRGINIA            (3) South     (5) South Atlantic
3                   (6) CALIFORNIA             (4) West            (9) Pacific
4                  (28) MISSISSIPPI            (3) South (6) East South Central
5                     (36) NEW YORK        (1) Northeast       (2) Mid-Atlantic
6                      (18) INDIANA          (2) Midwest (3) East North Central
  OFFERED.INTAKE.ASS.MNT.REFER.... Offered.Detox.3.31.03 Offered.SA.Tx.3.31.03
1              OTHNONTXSort column      DETOXSort column    TREATMTSort column
2                          (1) Yes                (0) No                (1) Yes
3                          (1) Yes                (0) No                (1) Yes
4                          (1) Yes               (1) Yes                (1) Yes
5                           (0) No                (0) No                (1) Yes
6                          (1) Yes                (0) No                (1) Yes
  Setting..Halfway.House OFFERED.OTHER.SA.SERVICES.SU....
1        LOC5Sort column                 ADMINSort column
2                (1) Yes                         (1) Yes
3                (1) Yes                         (1) Yes
4                 (0) No                          (0) No
5                 (0) No                          (0) No
6                 (0) No                          (0) No
              PRIMARY.FOCUS.SA.TX.MH.MIX.G....
1                             FOCUSSort column
2       (1) Substance abuse treatment services
3       (1) Substance abuse treatment services
4 (3) Mix of mental health and substance abuse
5       (1) Substance abuse treatment services
6 (3) Mix of mental health and substance abuse
                                 Ownership Federal.Government.Agency
1                       OWNERSHPSort column         FEDOWNSort column
2        (2) Private non-profit organization                      <NA>
3        (2) Private non-profit organization                      <NA>
4        (1) Private for-profit organization                      <NA>
5 (4) Local, county, or community government                      <NA>
6        (2) Private non-profit organization                      <NA>
     Solo.practice AFFILIATED.W..RELIGIOUS.ORGA....
1 LOC15Sort column                RELIGSort column
2           (0) No                         (0) No
3           (0) No                         (0) No
4           (0) No                         (0) No
```

```
5             <NA>                              <NA>
6          (0) No                            (0) No
  LOCATED.IN.OPERATED.BY.HOSPI....            Hospital.Type Hotline...yes.no
1              HOSPITALSort column         LOCSSort column HOTYNSort column
2                          (0) No                     <NA>           (0) No
3                          (0) No                     <NA>           (0) No
4                         (1) Yes (2) Psychiatric hospital          (1) Yes
5                          (0) No                     <NA>           (0) No
6                          (0) No                     <NA>           (0) No
  Assessment.comprehensive.SA Assessment.mental.health
1            SRVC1Sort column         SRVC2Sort column
2                      (0) No                   (0) No
3                     (1) Yes                     <NA>
4                     (1) Yes                  (1) Yes
5                     (1) Yes                     <NA>
6                     (1) Yes                  (1) Yes
  Therapy.family.counseling    Therapy.group
1          SRVC4Sort column SRVC5Sort column
2                    (0) No          (1) Yes
3                   (1) Yes          (1) Yes
4                   (1) Yes          (1) Yes
5                      <NA>          (1) Yes
6                   (1) Yes          (1) Yes
```

```
Dataset.csv <-Dataset.csv[-c(1,2), ]
#View(Dataset.csv)
```

3 Freq Table

```
colnames(Dataset.csv)
```

```
 [1] "S.NoSort.column"                  "Case.Identification.Number"
 [3] "CONTROL..COMPLETES.1.PHONE.2...." "CENSUS.STATE.FIPS.CODES.LABE...."
 [5] "Added..Census.Region"             "Added..Census.Division"
 [7] "OFFERED.INTAKE.ASS.MNT.REFER...." "Offered.Detox.3.31.03"
 [9] "Offered.SA.Tx.3.31.03"            "Setting..Halfway.House"
[11] "OFFERED.OTHER.SA.SERVICES.SU...." "PRIMARY.FOCUS.SA.TX.MH.MIX.G...."
[13] "Ownership"                        "Federal.Government.Agency"
[15] "Solo.practice"                    "AFFILIATED.W..RELIGIOUS.ORGA...."
```

```
[17] "LOCATED.IN.OPERATED.BY.HOSPI...." "Hospital.Type"
[19] "Hotline...yes.no"                 "Assessment.comprehensive.SA"
[21] "Assessment.mental.health"         "Therapy.family.counseling"
[23] "Therapy.group"
```

I choose this variable of ownership, because I think it will be important to understand what kind of facilities are available for treatment, to different communities such as low income and wealthy communities.

```
freq(as.ordered(Dataset.csv$Ownership), plot = FALSE)
```

```
as.ordered(Dataset.csv$Ownership)
                                          Frequency Percent Cum Percent
(1) Private for-profit organization               5  20.833       20.83
(2) Private non-profit organization              15  62.500       83.33
(3) State government                              1   4.167       87.50
(4) Local, county, or community government        3  12.500      100.00
Total                                            24 100.000
```

When choosing this variable, I though about what type of facilities are available for substance use disorder? This variable will also play an important role, because addicts who are in recovery need the support of family and society, so is important to know about the services that facilities will provide not only to the patient but to their love ones in order to support their rehab process.

```
freq(as.ordered(Dataset.csv$Therapy.family.counseling), plot = FALSE)
```

```
as.ordered(Dataset.csv$Therapy.family.counseling)
        Frequency Percent Valid Percent Cum Percent
(0) No          7  29.167         31.82       31.82
(1) Yes        15  62.500         68.18      100.00
NA's            2   8.333
Total          24 100.000        100.00
```

This variable took my attention because ther is many places that only might take in patients only by referrals, but this could be a barrier for treatment. Also is there more people reaching for help by them selves or because they were referred? I think this will be very interesting to explore

```
freq(as.ordered(Dataset.csv$OFFERED.INTAKE.ASS.MNT.REFER....), plot = FALSE)
```

```
as.ordered(Dataset.csv$OFFERED.INTAKE.ASS.MNT.REFER....)
        Frequency Percent Cum Percent
(0) No          3    12.5        12.5
(1) Yes        21    87.5       100.0
Total          24   100.0
```

This variable is important because it will be important to understand how important is the group therapy to maintaining in abstinence during after rehab.

```
freq(as.ordered(Dataset.csv$Therapy.group), plot = FALSE)
```

```
as.ordered(Dataset.csv$Therapy.group)
        Frequency Percent Cum Percent
(0) No          4   16.67       16.67
(1) Yes        20   83.33      100.00
Total          24  100.00
```

4 Data Management

won't be using this but it was created as an example for the assignment required on pdf

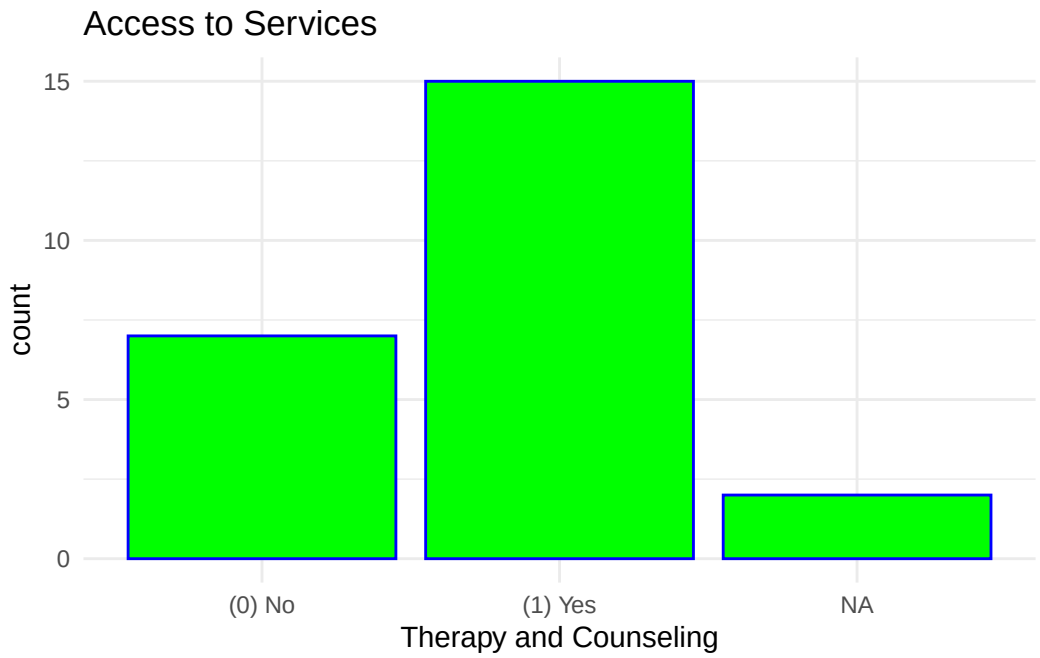
```
Dataset.csv$THERAPY <-factor(ifelse((Dataset.csv$Therapy.family.counseling ==1 | Dataset.csv$
summary(Dataset.csv$THERAPY)
```

```
  no NA's
  22    2
```

5 GRAPHS

Univariate Graphs

```
Dataset.csv %>%
ggplot(aes(x=Therapy.family.counseling)) + geom_bar(fill="green",color = "blue") +
ggtitle("Access to Services") +
xlab("Therapy and Counseling") +
ylab("count") +
theme_minimal()
```

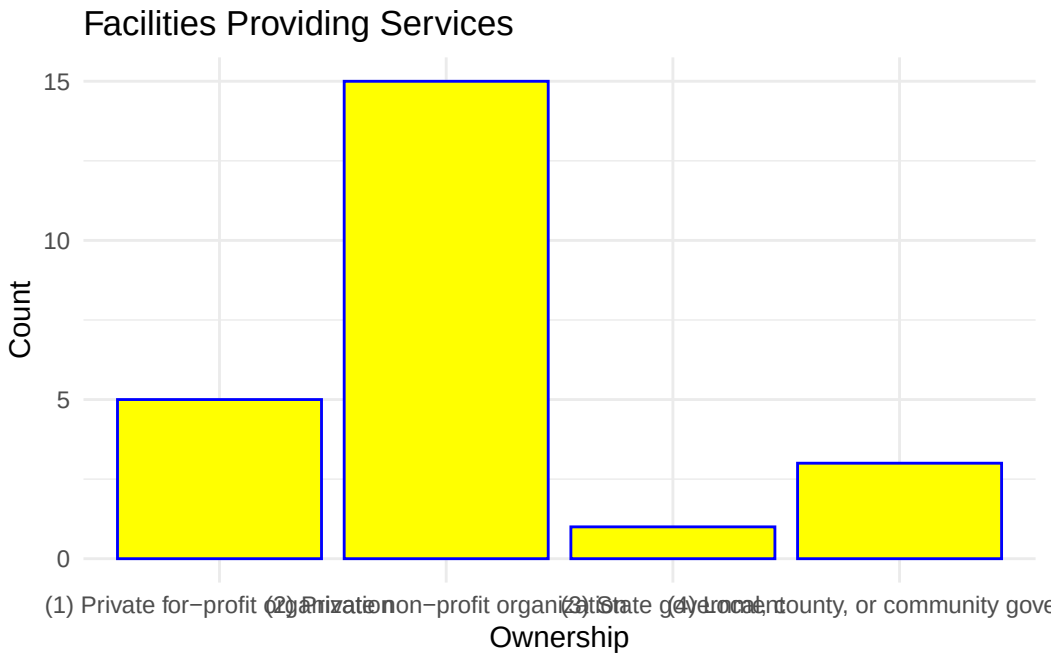



```
Dataset.csv %>%
  ggplot(aes(x=Ownership)) +

  geom_bar(fill= "yellow", color = "blue") +

  ggtitle("Facilities Providing Services") +
  xlab("Ownership") +

  ylab("Count") +
  theme_minimal()
```



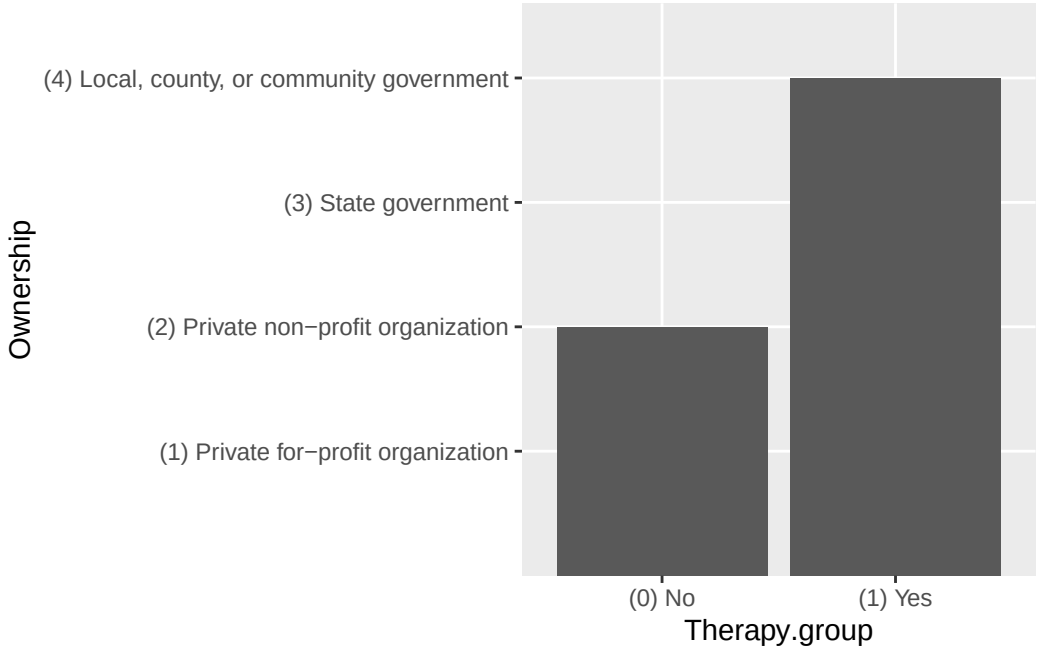
Quantitative Variable

```
Dataset.csv %>%
  ggplot(aes(x=))
```


Bivariate Graphs

```
ggplot(data=Dataset.csv) +
  stat_summary(aes(x=Therapy.group,
                   y=Ownership),
               fun.y =mean,
               geom="bar")
```

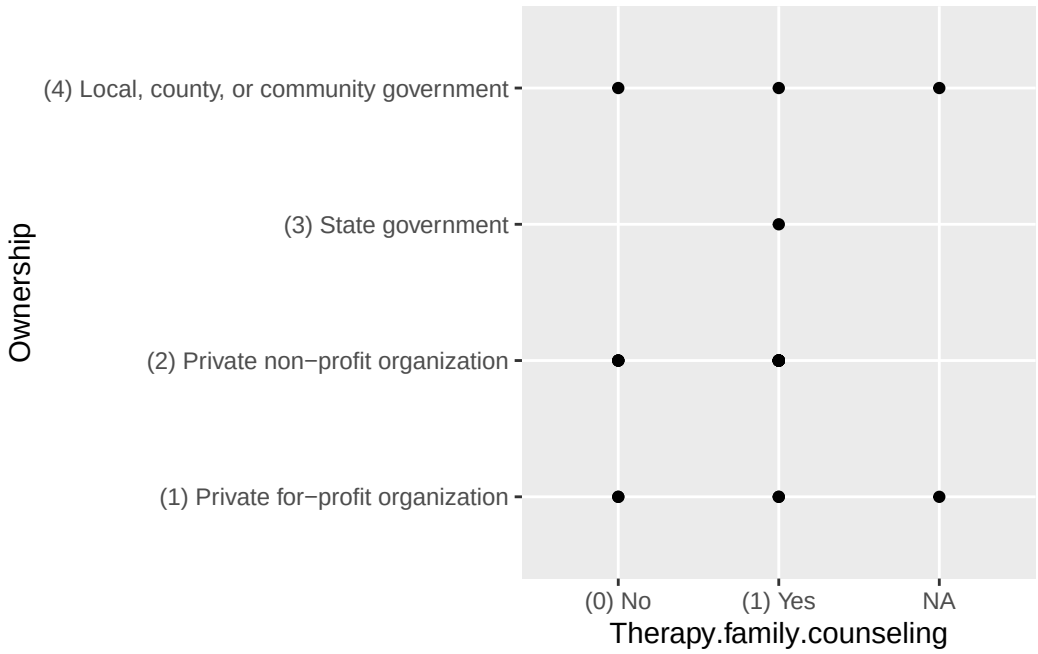
```
Warning: The `fun.y` argument of `stat_summary()` is deprecated as of ggplot2 3.3.0.
i Please use the `fun` argument instead.
```




```
ggplot(data=Dataset.csv) +
  geom_boxplot(aes(x=Therapy.group,
                   y=Therapy.group)) +
  ggtitle("Services within organizations")
```

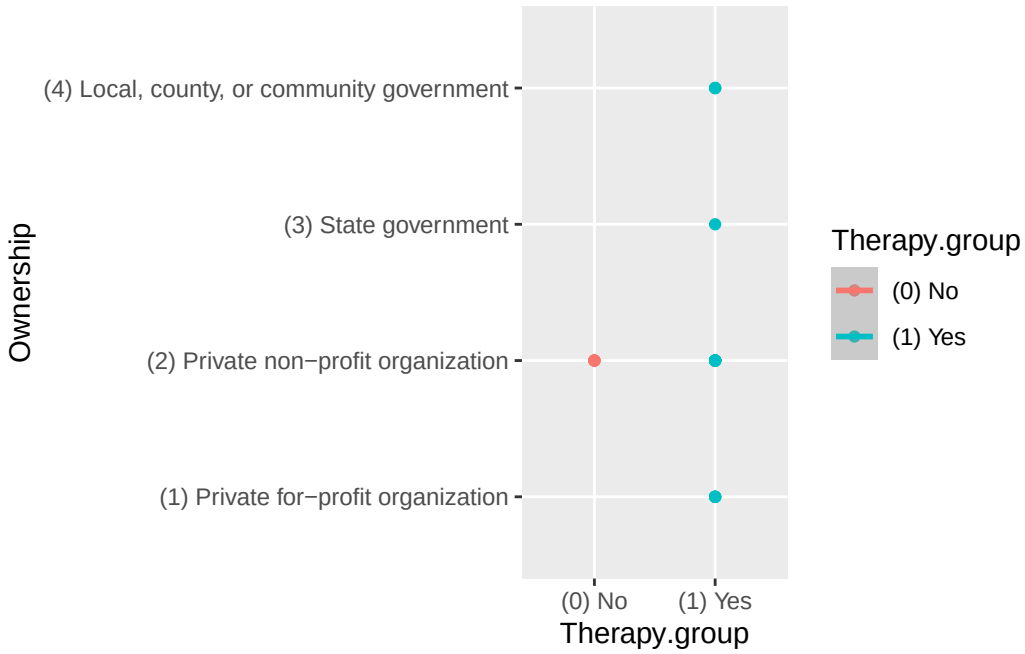

```
ggplot(data=Dataset.csv) +
  geom_point(aes(x=Therapy.family.counseling,
                 y=Ownership)) +
  geom_smooth(aes(x=Therapy.family.counseling,
                  y=Ownership),
              method="lm")
```

```
`geom_smooth()` using formula = 'y ~ x'
```




```
ggplot( data= Dataset.csv) +
  geom_point(aes(x=Therapy.group,
                 y=Ownership,
                 color= Therapy.group)) +
  geom_smooth(aes(x=Therapy.group,
                  y=Ownership,
                  color=
                    Therapy.group),
              method="lm")
```

```
`geom_smooth()` using formula = 'y ~ x'
```


Ownership
(4) Local, county, or community government
(3) State government
(2) Private non−profit organization
(1) Private for−profit organization
(0) No
(1) Yes
Therapy.group
Therapy.group
(0) No
(1) Yes