

Chicago Domestic Crimes During Pandemic

```
glimpse(domvio)
```

```
## Rows: 231,002
## Columns: 17
## $ CASE. <chr> "JD163753", "JD212847", "JC497784", "JC459410...
## $ DATE..OF.OCCURRENCE <chr> "02/24/2020 08:15:00 PM", "04/10/2020 10:56:0...
## $ BLOCK <chr> "031XX W LEXINGTON ST", "005XX W 103RD ST", "...
## $ IUCR <chr> "1153", "0560", "0860", "0560", "0810", "0820...
## $ PRIMARY.DESCRPTION <chr> "DECEPTIVE PRACTICE", "ASSAULT", "THEFT", "AS...
## $ SECONDARY.DESCRPTION <chr> "FINANCIAL IDENTITY THEFT OVER $ 300", "SIMPL...
## $ LOCATION.DESCRPTION <chr> "", "RESIDENCE", "DEPARTMENT STORE", "SIDEWAL...
## $ ARREST <chr> "N", "N", "N", "N", "N", "N", "N", "N", "N", ...
## $ DOMESTIC <chr> "N", "N", "N", "N", "N", "N", "N", "N", "N", ...
## $ BEAT <int> 1134, 2232, 1924, 122, 123, 2433, 312, 914, 3...
## $ WARD <int> 24, 9, 44, 4, 25, 48, 20, 11, 5, 26, 27, 37, ...
## $ FBI.CD <chr> "11", "08A", "06", "08A", "06", "06", "08A", ...
## $ X.COORDINATE <int> NA, 1174583, NA, NA, NA, NA, 1180030, 1171590...
## $ Y.COORDINATE <int> NA, 1836593, NA, NA, NA, NA, 1862317, 1887793...
## $ LATITUDE <dbl> NA, 41.70700, NA, NA, NA, NA, 41.77747, 41.84...
## $ LONGITUDE <dbl> NA, -87.63629, NA, NA, NA, NA, -87.61556, -87...
## $ LOCATION <chr> "", "(41.707000821, -87.636288063)", "", "", ...
```

```
domvio<-domvio %>%
  mutate(MONTH = substring(DATE..OF.OCCURRENCE, 0, 2)) %>%
  mutate(DAY = substring(DATE..OF.OCCURRENCE, 4,5)) %>%
  mutate(YEAR = substring(DATE..OF.OCCURRENCE, 7,10))
```

```
glimpse(domvio)
```

```
## Rows: 231,002
## Columns: 20
## $ CASE. <chr> "JD163753", "JD212847", "JC497784", "JC459410...
## $ DATE..OF.OCCURRENCE <chr> "02/24/2020 08:15:00 PM", "04/10/2020 10:56:0...
## $ BLOCK <chr> "031XX W LEXINGTON ST", "005XX W 103RD ST", "...
## $ IUCR <chr> "1153", "0560", "0860", "0560", "0810", "0820...
## $ PRIMARY.DESCRPTION <chr> "DECEPTIVE PRACTICE", "ASSAULT", "THEFT", "AS...
## $ SECONDARY.DESCRPTION <chr> "FINANCIAL IDENTITY THEFT OVER $ 300", "SIMPL...
## $ LOCATION.DESCRPTION <chr> "", "RESIDENCE", "DEPARTMENT STORE", "SIDEWAL...
## $ ARREST <chr> "N", "N", "N", "N", "N", "N", "N", "N", "N", ...
## $ DOMESTIC <chr> "N", "N", "N", "N", "N", "N", "N", "N", "N", ...
## $ BEAT <int> 1134, 2232, 1924, 122, 123, 2433, 312, 914, 3...
## $ WARD <int> 24, 9, 44, 4, 25, 48, 20, 11, 5, 26, 27, 37, ...
## $ FBI.CD <chr> "11", "08A", "06", "08A", "06", "06", "08A", ...
## $ X.COORDINATE <int> NA, 1174583, NA, NA, NA, NA, 1180030, 1171590...
## $ Y.COORDINATE <int> NA, 1836593, NA, NA, NA, NA, 1862317, 1887793...
## $ LATITUDE <dbl> NA, 41.70700, NA, NA, NA, NA, 41.77747, 41.84...
## $ LONGITUDE <dbl> NA, -87.63629, NA, NA, NA, NA, -87.61556, -87...
```

```
## $ LOCATION      <chr> "", "(41.707000821, -87.636288063)", "", "", ...
## $ MONTH         <chr> "02", "04", "11", "10", "05", "12", "05", "05...
## $ DAY           <chr> "24", "10", "03", "04", "24", "05", "07", "03...
## $ YEAR          <chr> "2020", "2020", "2019", "2019", "2020", "2019...
```

```
domvio_mut<-domvio
```

```
#create an indicator for being in the lockdown
#this indicator is "islockdown"
```

```
domvio_mut<-domvio_mut %>%
  filter(YEAR=="2020") %>%
  mutate(islockdown = case_when(
    MONTH < "03" ~ 0,
    MONTH == "03" & DAY < "22" ~ 0,
    MONTH == "03" & DAY >= "22" ~ 1,
    MONTH == "04" ~ 1,
    MONTH == "05" & DAY <= "29" ~ 1,
    MONTH == "05" & DAY > "29" ~ 0,
    MONTH > "05" ~ 0
  ))
```

```
#create an indicator for the recovery period
#this indicator is "isrecovery"
```

```
domvio_mut<-domvio_mut %>%
  filter(YEAR=="2020") %>%
  mutate(isrecovery = case_when(
    MONTH < "05" ~ 0,
    MONTH == "05" & DAY <= "29" ~ 0,
    MONTH == "05" & DAY > "29" ~ 1,
    MONTH > "05" ~ 1
  ))
```

```
#create an indicator for years in 2020 pre covid
#this indicator is "isprecovid"
```

```
domvio_mut<-domvio_mut %>%
  filter(YEAR=="2020") %>%
  mutate(isprecovid = case_when(
    MONTH < "03" ~ 1,
    MONTH == "03" & DAY < "22" ~ 1,
    MONTH == "03" & DAY >= "22" ~ 0,
    MONTH > "04" ~ 0,
  ))
```

```
#create an indicator for years in 2019 to compare with 2020 pre covid
#this indicator is "is2019compare"
```

```
#create an indicator for cases of dom violence
#this indicator is "isdomviolence"
```

```

domvio_mut<-domvio_mut %>%
  mutate(isdomviolence = case_when(
    SECONDARY.DESCRPTION == "DOMESTIC BATTERY SIMPLE" ~ 1,
    SECONDARY.DESCRPTION != "DOMESTIC BATTERY SIMPLE" ~ 0
  ))

#create an indicator for cases of dom violence
#this indicator is "isdomviolence"

glimpse(domvio_mut)

## Rows: 105,331
## Columns: 24
## $ CASE. <chr> "JD163753", "JD212847", "JD242916", "JD226153...
## $ DATE..OF.OCCURRENCE <chr> "02/24/2020 08:15:00 PM", "04/10/2020 10:56:0...
## $ BLOCK <chr> "031XX W LEXINGTON ST", "005XX W 103RD ST", "...
## $ IUCR <chr> "1153", "0560", "0810", "0560", "1130", "0910...
## $ PRIMARY.DESCRPTION <chr> "DECEPTIVE PRACTICE", "ASSAULT", "THEFT", "AS...
## $ SECONDARY.DESCRPTION <chr> "FINANCIAL IDENTITY THEFT OVER $ 300", "SIMPL...
## $ LOCATION.DESCRPTION <chr> "", "RESIDENCE", "RESIDENCE - GARAGE", "RESID...
## $ ARREST <chr> "N", "N", "N", "N", "N", "N", "N", "N", "N", ...
## $ DOMESTIC <chr> "N", "N", "N", "N", "N", "N", "N", "N", "N", ...
## $ BEAT <int> 1134, 2232, 123, 312, 914, 331, 2534, 1221, 1...
## $ WARD <int> 24, 9, 25, 20, 11, 5, 26, 27, 37, 4, 5, 49, 3...
## $ FBI.CD <chr> "11", "08A", "06", "08A", "11", "07", "08A", ...
## $ X.COORDINATE <int> NA, 1174583, NA, 1180030, 1171590, 1192034, 1...
## $ Y.COORDINATE <int> NA, 1836593, NA, 1862317, 1887793, 1860809, 1...
## $ LATITUDE <dbl> NA, 41.70700, NA, 41.77747, 41.84757, 41.7730...
## $ LONGITUDE <dbl> NA, -87.63629, NA, -87.61556, -87.64575, -87....
## $ LOCATION <chr> "", "(41.707000821, -87.636288063)", "", "(41...
## $ MONTH <chr> "02", "04", "05", "05", "05", "04", "05", "04...
## $ DAY <chr> "24", "10", "24", "07", "03", "28", "07", "25...
## $ YEAR <chr> "2020", "2020", "2020", "2020", "2020", "2020...
## $ islockdown <dbl> 0, 1, 1, 1, 1, 1, 1, 1, 1, 1, 1, 1, 1, 1, ...
## $ isrecovery <dbl> 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, ...
## $ isprecovid <dbl> 1, NA, 0, 0, 0, NA, 0, NA, 0, 0, 0, NA, 0, 0,...
## $ isdomviolence <dbl> 0, 0, 0, 0, 0, 0, 0, 0, 0, 1, 0, 0, 0, 0, ...

#number of observations during lockdown
domvio_mut %>%
  count (islockdown)

##   islockdown    n
## 1          0 74098
## 2          1 31233

#number of observations during recovery
domvio_mut %>%
  count (isrecovery)

##   isrecovery    n
## 1          0 80878
## 2          1 24453

```

#number of observations during in 2020 pre covid

```
domvio_mut %>%
  count (isprecovid)
```

```
##   isprecovid      n
## 1           0 43085
## 2           1 49645
## 3          NA 12601
```

#number of cases of domestic violence

```
domvio_mut %>%
  count(isdomviolence)
```

```
##   isdomviolence      n
## 1              0 94446
## 2              1 10885
```

#see number of cases of domestic violence on a given day

```
domvio_mut %>%
  filter(YEAR=="2020") %>%
  filter(MONTH=="05") %>%
  filter(DAY=="30") %>%
  count(isdomviolence)
```

```
##   isdomviolence      n
## 1              0  810
## 2              1   68
```

```
filter2019<-domvio %>%
  filter(YEAR == "2019")
```

#number of observations during in 2019 period to compare with 2020

```
filter2019<-filter2019 %>%
  mutate(iscompared = case_when(
    MONTH < "03" ~ 1,
    MONTH == "03" & DAY < "22" ~ 1,
    MONTH == "03" & DAY >= "22" ~ 0,
    MONTH > "04" ~ 0,

  ))
```

```
glimpse(filter2019)
```

```
## Rows: 125,671
## Columns: 21
## $ CASE. <chr> "JC497784", "JC459410", "JC537116", "JC536043...
## $ DATE..OF.OCCURRENCE <chr> "11/03/2019 11:40:00 AM", "10/04/2019 06:10:0...
## $ BLOCK <chr> "032XX N CLARK ST", "004XX S LA SALLE ST", "0...
## $ IUCR <chr> "0860", "0560", "0820", "2026", "0810", "0486...
## $ PRIMARY.DESCRPTION <chr> "THEFT", "ASSAULT", "THEFT", "NARCOTICS", "TH...
## $ SECONDARY.DESCRPTION <chr> "RETAIL THEFT", "SIMPLE", "$500 AND UNDER", "...
## $ LOCATION.DESCRPTION <chr> "DEPARTMENT STORE", "SIDEWALK", "RESIDENCE PO...
## $ ARREST <chr> "N", "N", "N", "Y", "N", "N", "N", "N", "Y", ...
## $ DOMESTIC <chr> "N", "N", "N", "N", "N", "Y", "N", "N", "N", ...
## $ BEAT <int> 1924, 122, 2433, 1011, 825, 1523, 1513, 2533,...
## $ WARD <int> 44, 4, 48, 24, 16, 28, 29, 37, 14, 8, 28, 25,...
```

```
## $ FBI.CD          <chr> "06", "08A", "06", "18", "06", "08B", "14", "...
## $ X.COORDINATE    <int> NA, NA, NA, 1150838, 1161459, 1140315, 113904...
## $ Y.COORDINATE    <int> NA, NA, NA, 1893100, 1862643, 1900516, 189986...
## $ LATITUDE        <dbl> NA, NA, NA, 41.86256, 41.77877, 41.88311, 41....
## $ LONGITUDE       <dbl> NA, NA, NA, -87.72177, -87.68363, -87.76022, ...
## $ LOCATION        <chr> "", "", "", "(41.862559339, -87.721771053)", ...
## $ MONTH           <chr> "11", "10", "12", "12", "11", "11", "11", "11...
## $ DAY             <chr> "03", "04", "05", "05", "19", "19", "19", "19...
## $ YEAR            <chr> "2019", "2019", "2019", "2019", "2019", "2019...
## $ iscompared      <dbl> 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, ...
```

```
filter2019 %>%
  count(iscompared)
```

```
##   iscompared      n
## 1          0 125671
```

#using this code you can see that there are no observations in #the month of 06, but in 07 you can see

```
filter2019 %>%
  filter(MONTH=="06") %>%
  count(iscompared)
```

```
## [1] iscompared n
## <0 rows> (or 0-length row.names)
```