

# Chicago Domestic Crimes During Pandemic

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

#heres what the data looks like
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 <int> 2, 4, 11, 10, 5, 12, 5, 5, 4, 5, 4, 5, 5, ...
## $ DAY <int> 24, 10, 3, 4, 24, 5, 7, 3, 28, 7, 25, 7, 7, 5...
## $ YEAR <int> 2020, 2020, 2019, 2019, 2020, 2019, 2020, 202...

domvio_mut<-domvio

#create an indicator for being before covid entirely
#this indicator is "isbeforecovid"

domvio_mut<-domvio_mut %>%
  mutate(isbeforecovid = case_when(
    YEAR == 2019 ~ 1,
    YEAR == 2020 & MONTH == 1 & DAY <=24 ~ 1,
    YEAR == 2020 & MONTH == 1 & DAY > 24 ~ 0,
    YEAR == 2020 & MONTH > 1 ~ 0,
  ))

#create an indicator for being before lockdown (tho covid is in the USA)
#this indicator is "isprelockdown"
domvio_mut<-domvio_mut %>%
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mutate(isprelockdown = case_when(
  YEAR == 2019 ~ 0,
  YEAR == 2020 & MONTH == 1 & DAY <= 24 ~ 0,
  YEAR == 2020 & MONTH == 1 & DAY > 24 ~ 1,
  YEAR == 2020 & MONTH == 2 ~ 1,
  YEAR == 2020 & MONTH == 3 & DAY < 22 ~ 1,
  YEAR == 2020 & MONTH == 3 & DAY >= 22 ~ 0,
  YEAR == 2020 & MONTH > 3 ~ 0
))

#create an indicator for being in the lockdown
#this indicator is "islockdown"
domvio_mut<-domvio_mut %>%
  mutate(islockdown = case_when(
    YEAR == 2019 ~ 0,
    YEAR == 2020 & MONTH < 3 ~ 0,
    YEAR == 2020 & MONTH == 3 & DAY < 22 ~ 0,
    YEAR == 2020 & MONTH == 3 & DAY >= 22 ~ 1,
    YEAR == 2020 & MONTH == 4 ~ 1,
    YEAR == 2020 & MONTH >= 5 ~ 0
  ))

#create an indicator for phase 2 in the recovery
#this indicator is "isphase2"
domvio_mut<-domvio_mut %>%
  mutate(isrecovery = case_when(
    YEAR == 2019 ~ 0,
    YEAR == 2020 & MONTH < 5 ~ 0,
    YEAR == 2020 & MONTH == 5 ~ 1,
    YEAR == 2020 & MONTH == 6 & DAY < 3 ~ 1,
    YEAR == 2020 & MONTH == 6 & DAY >= 3 ~ 0,
    YEAR == 2020 & MONTH >= 7 ~ 0
  ))

#create an indicator for phase 3 in the recovery
#this indicator is "isphase3"
domvio_mut<-domvio_mut %>%
  mutate(isphase3 = case_when(
    YEAR == 2019 ~ 0,
    YEAR == 2020 & MONTH < 6 ~ 0,
    YEAR == 2020 & MONTH == 6 & DAY >= 3 & DAY <= 25 ~ 1,
    YEAR == 2020 & MONTH == 6 & DAY > 25 ~ 0,
    YEAR == 2020 & MONTH >= 7 ~ 0
  ))

#create an indicator for phase 4 in the recovery
#this indicator is "isphase4"
domvio_mut<-domvio_mut %>%
  mutate(isphase4 = case_when(
    YEAR == 2019 ~ 0,
    YEAR == 2020 & MONTH < 6 ~ 0,
    YEAR == 2020 & MONTH == 6 & DAY < 26 ~ 0,
    YEAR == 2020 & MONTH == 6 & DAY >= 26 ~ 1,
  ))

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YEAR == 2020 & MONTH >= 7 ~ 1
))

#create an indicator for cases of dom violence
#this indicator is "isdomviolence"
domvio_mut<-domvio_mut %>%
  mutate(isdomviolence = case_when(
    SECONDARY.DESCRPTION == "VIOLATION OF BAIL BOND - DOMESTIC VIOLENCE" |
    SECONDARY.DESCRPTION == "DOMESTIC BATTERY SIMPLE" |
    SECONDARY.DESCRPTION == "AGGRAVATED DOMESTIC BATTERY: OTHER DANGEROUS WEAPON" |
    SECONDARY.DESCRPTION == "AGGRAVATED DOMESTIC BATTERY: OTHER DANG WEAPON" |
    SECONDARY.DESCRPTION == "AGGRAVATED DOMESTIC BATTERY: KNIFE/CUTTING INST" |
    SECONDARY.DESCRPTION == "AGGRAVATED DOMESTIC BATTERY: KNIFE / CUTTING INSTSTRUMENT" |
    SECONDARY.DESCRPTION == "AGGRAVATED DOMESTIC BATTERY: HANDS/FIST/FEET SERIOUS INJURY" |
    SECONDARY.DESCRPTION == "AGGRAVATED DOMESTIC BATTERY: HANDGUN" |
    SECONDARY.DESCRPTION == "AGGRAVATED DOMESTIC BATTERY - OTHER FIREARM" |
    SECONDARY.DESCRPTION == "AGGRAVATED DOMESTIC BATTERY - OTHER DANGEROUS WEAPON" |
    SECONDARY.DESCRPTION == "AGGRAVATED DOMESTIC BATTERY - KNIFE / CUTTING INSTRUMENT" |
    SECONDARY.DESCRPTION == "AGGRAVATED DOMESTIC BATTERY - HANDGUN" |
    SECONDARY.DESCRPTION == "AGG. DOMESTIC BATTERY - HANDS, FISTS, FEET, SERIOUS INJURY" ~ 1,
    SECONDARY.DESCRPTION != "VIOLATION OF BAIL BOND - DOMESTIC VIOLENCE" &
    SECONDARY.DESCRPTION != "DOMESTIC BATTERY SIMPLE" &
    SECONDARY.DESCRPTION != "AGGRAVATED DOMESTIC BATTERY: OTHER DANGEROUS WEAPON" &
    SECONDARY.DESCRPTION != "AGGRAVATED DOMESTIC BATTERY: OTHER DANG WEAPON" &
    SECONDARY.DESCRPTION != "AGGRAVATED DOMESTIC BATTERY: KNIFE/CUTTING INST" &
    SECONDARY.DESCRPTION != "AGGRAVATED DOMESTIC BATTERY: KNIFE / CUTTING INSTSTRUMENT" &
    SECONDARY.DESCRPTION != "AGGRAVATED DOMESTIC BATTERY: HANDS/FIST/FEET SERIOUS INJURY" &
    SECONDARY.DESCRPTION != "AGGRAVATED DOMESTIC BATTERY: HANDGUN" &
    SECONDARY.DESCRPTION != "AGGRAVATED DOMESTIC BATTERY - OTHER FIREARM" &
    SECONDARY.DESCRPTION != "AGGRAVATED DOMESTIC BATTERY - OTHER DANGEROUS WEAPON" &
    SECONDARY.DESCRPTION != "AGGRAVATED DOMESTIC BATTERY - KNIFE / CUTTING INSTRUMENT" &
    SECONDARY.DESCRPTION != "AGGRAVATED DOMESTIC BATTERY - HANDGUN" &
    SECONDARY.DESCRPTION != "AGG. DOMESTIC BATTERY - HANDS, FISTS, FEET, SERIOUS INJURY" ~ 0
  ))

#if you are wondering about how the actual data looks like there it is
#number of observations during lockdown
domvio_mut %>%
  count (islockdown)

##   islockdown      n
## 1           0 214160
## 2           1  16842

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

##   isrecovery      n
## 1           0 212424
## 2           1  18578

#number of observations during p3, p4
domvio_mut %>%
  count (isphase3)

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```
## isphase3      n
## 1           0 216803
## 2           1  12722
## 3          NA   1477
```

```
domvio_mut %>%
  count(isphase4)
```

```
## isphase4      n
## 1           0 223458
## 2           1   7544
```

*#number of observations during in 2020 pre covid*

```
domvio_mut %>%
  count(isbeforecovid)
```

```
## isbeforecovid  n
## 1              0 90305
## 2              1 140697
```

*#number of cases of domestic violence*

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

```
## isdomviolence  n
## 1              0 206105
## 2              1  24897
```

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

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

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

*#observations of dom violence on a day or month*

```
domvio_mut %>%
  filter(YEAR=="2019") %>%
  filter(MONTH=="07") %>%
  count(isdomviolence)
```

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

```
domvio_cat<-domvio_mut %>%
  group_by(SECONDARY.DESCRPTION) %>%
  summarise(n=n())
domvio_cat
```

```
## # A tibble: 430 x 2
## SECONDARY.DESCRPTION      n
## <chr>                    <int>
## 1 $500 AND UNDER          20888
## 2 ABUSE / NEGLECT - CARE FACILITY    5
## 3 ABUSE/NEGLECT: CARE FACILITY      10
## 4 AGG CRIM SEX ABUSE FAM MEMBER     78
```

##	5 AGG CRIMINAL SEXUAL ABUSE	63
##	6 AGG PO HANDS ETC SERIOUS INJ	8
##	7 AGG PO HANDS NO/MIN INJURY	593
##	8 AGG PRO EMP HANDS SERIOUS INJ	16
##	9 AGG PRO.EMP: HANDGUN	26
##	10 AGG PRO.EMP: OTHER DANG WEAPON	85
##	# ... with 420 more rows	