

# Women's access to justice through Xeer

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```
library(readxl)
library(tidyverse)
library(rstatix)
library(knitr)
```

```
data <- read_excel("./data.xlsx")
```

```
## New names:
## * 'Please specify other' -> 'Please specify other...7'
## * 'Please specify other' -> 'Please specify other...31'
## * 'Please specify other' -> 'Please specify other...33'
## * 'Why not?' -> 'Why not?...39'
## * 'The most important thing in resolving the case is:' -> 'The most important
##   thing in resolving the case is:...60'
## * 'The second most important thing in resolving the case is:' -> 'The second
##   most important thing in resolving the case is:...62'
## * 'Please specify other' -> 'Please specify other...64'
## * 'Was this person in your diya group?' -> 'Was this person in your diya
##   group?...66'
## * 'Was this person in your family?' -> 'Was this person in your family?...67'
## * 'What was the marital status of the victim at the time of the incident?' ->
##   'What was the marital status of the victim at the time of the incident?...68'
## * 'Please specify other' -> 'Please specify other...70'
## * 'As far as you know, who was the crime reported to next?' -> 'As far as you
##   know, who was the crime reported to next?...71'
## * 'Please specify other' -> 'Please specify other...72'
## * 'Was the incident ever reported to the police?' -> 'Was the incident ever
##   reported to the police?...74'
## * 'Who ultimately resolved this case?' -> 'Who ultimately resolved this
##   case?...75'
## * 'Please specify other' -> 'Please specify other...76'
## * 'Which of the following were part of the final resolution? Please select all
##   that' -> 'Which of the following were part of the final resolution? Please
##   select all that...77'
## * 'Please specify other' -> 'Please specify other...85'
## * 'How long did it take to resolve the case?' -> 'How long did it take to
##   resolve the case?...86'
## * 'Was the diya actually paid?' -> 'Was the diya actually paid?...87'
## * 'How much was the diya payment? (PLEASE INCLUDE UNITS! Insert the amount that
##   was' -> 'How much was the diya payment? (PLEASE INCLUDE UNITS! Insert the
##   amount that was...88'
```

```

## * 'Diya payments might go to the victim, the diya group, the elders, or others.
## Do' -> 'Diya payments might go to the victim, the diya group, the elders, or
## others. Do...89'
## * 'Please specify other' -> 'Please specify other...90'
## * 'As far as you know, did the victim feel that justice was served?' -> 'As far
## as you know, did the victim feel that justice was served?...91'
## * 'why not?' -> 'why not?...92'
## * 'Why not?' -> 'Why not?...94'
## * 'The most important thing in resolving the case is:' -> 'The most important
## thing in resolving the case is:...95'
## * 'The second most important thing in resolving the case is:' -> 'The second
## most important thing in resolving the case is:...97'
## * 'Please specify other' -> 'Please specify other...99'
## * 'Was this person in your diya group?' -> 'Was this person in your diya
## group?...103'
## * 'Was this person in your family?' -> 'Was this person in your family?...104'
## * 'What was the marital status of the victim at the time of the incident?' ->
## 'What was the marital status of the victim at the time of the
## incident?...105'
## * 'Please specify other' -> 'Please specify other...107'
## * 'As far as you know, who was the crime reported to next?' -> 'As far as you
## know, who was the crime reported to next?...108'
## * 'Please specify other' -> 'Please specify other...110'
## * 'Was the incident ever reported to the police?' -> 'Was the incident ever
## reported to the police?...111'
## * 'Who ultimately resolved this case?' -> 'Who ultimately resolved this
## case?...112'
## * 'Please specify other' -> 'Please specify other...113'
## * 'Which of the following were part of the final resolution? Please select all
## that' -> 'Which of the following were part of the final resolution? Please
## select all that...114'
## * 'Please specify other' -> 'Please specify other...122'
## * 'How long did it take to resolve the case?' -> 'How long did it take to
## resolve the case?...123'
## * 'How much was the diya payment? (PLEASE INCLUDE UNITS! Insert the amount that
## was' -> 'How much was the diya payment? (PLEASE INCLUDE UNITS! Insert the
## amount that was...124'
## * 'Was the diya actually paid?' -> 'Was the diya actually paid?...125'
## * 'Diya payments might go to the victim, the diya group, the elders, or others.
## Do' -> 'Diya payments might go to the victim, the diya group, the elders, or
## others. Do...126'
## * 'As far as you know, did the victim feel that justice was served?' -> 'As far
## as you know, did the victim feel that justice was served?...127'
## * 'why not?' -> 'why not?...128'
## * 'The most important thing in resolving the case is:' -> 'The most important
## thing in resolving the case is:...129'
## * 'The second most important thing in resolving the case is:' -> 'The second
## most important thing in resolving the case is:...131'
## * 'Please specify other' -> 'Please specify other...133'

```

Data loaded.

## Descriptive statistics

```
## Known Victim Table
known_victim_table <- table(data$`Do you know anyone - or have you heard about anyone - who is a victim
cat("**Table: Known Victim**\n")
```

```
## **Table: Known Victim**
```

```
kable(as.data.frame(known_victim_table), col.names = c("Response", "Frequency"))
```

Response	Frequency
0. No	303
1. Yes	203
NA	511

```
## Random Half Table (variable "random_half" identifies which survey module a respondent was allocated
random_half_table <- table(data$random_half, useNA = "always")
cat("**Table: Random Half**\n")
```

```
## **Table: Random Half**
```

```
kable(as.data.frame(random_half_table), col.names = c("Group", "Frequency"))
```

Group	Frequency
0. sgbv	506
1. dv	511
NA	0

```
# Generate proportions for better understanding
known_victim_prop <- prop.table(known_victim_table) * 100
random_half_prop <- prop.table(random_half_table) * 100
```

```
# Print proportions
cat("**Proportions: Known Victim**\n")
```

```
## **Proportions: Known Victim**
```

```
kable(as.data.frame(known_victim_prop), col.names = c("Response", "Proportion (%)"))
```

Response	Proportion (%)
0. No	29.79351
1. Yes	19.96067

Response	Proportion (%)
NA	50.24582

```
cat("**Proportions: Random Half**\n")
```

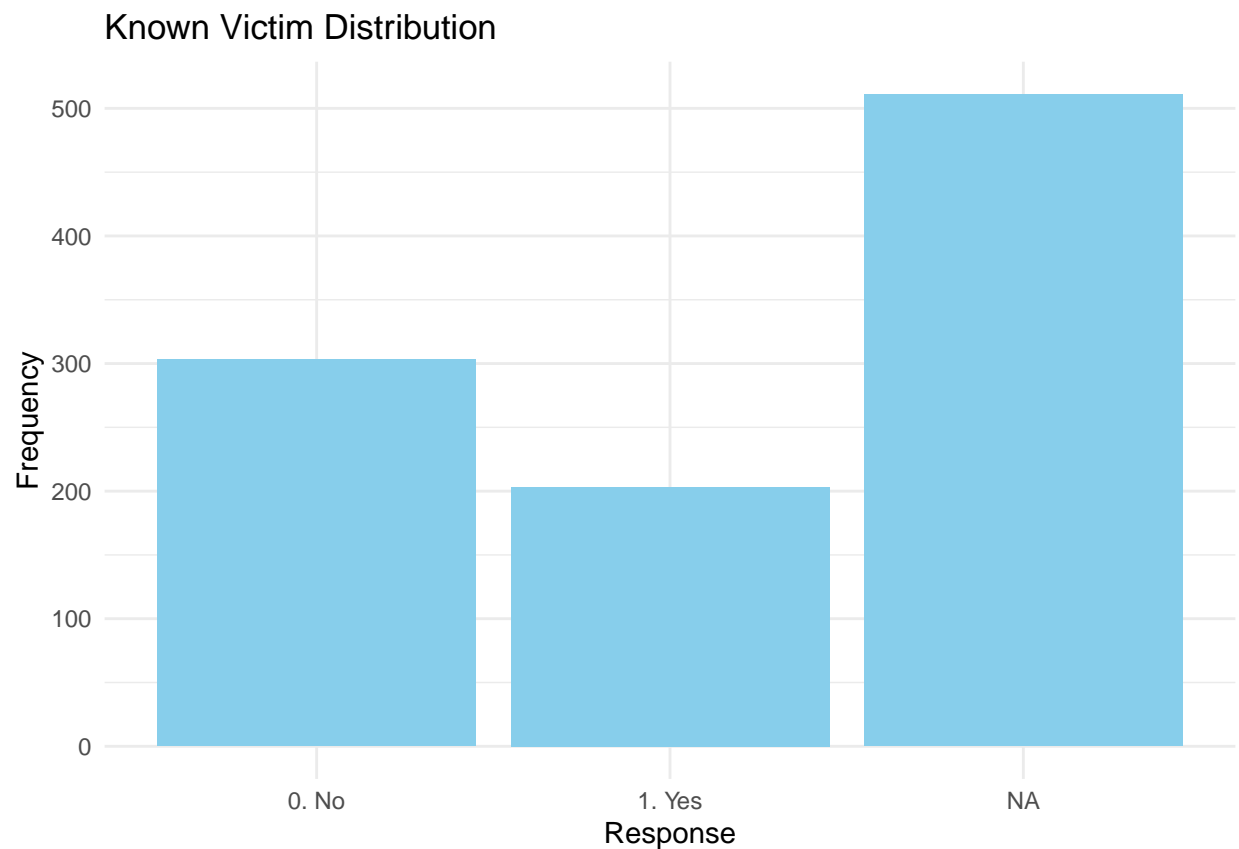
```
## **Proportions: Random Half**
```

```
kable(as.data.frame(random_half_prop), col.names = c("Group", "Proportion (%)"))
```

Group	Proportion (%)
0. sgbv	49.75418
1. dv	50.24582
NA	0.00000

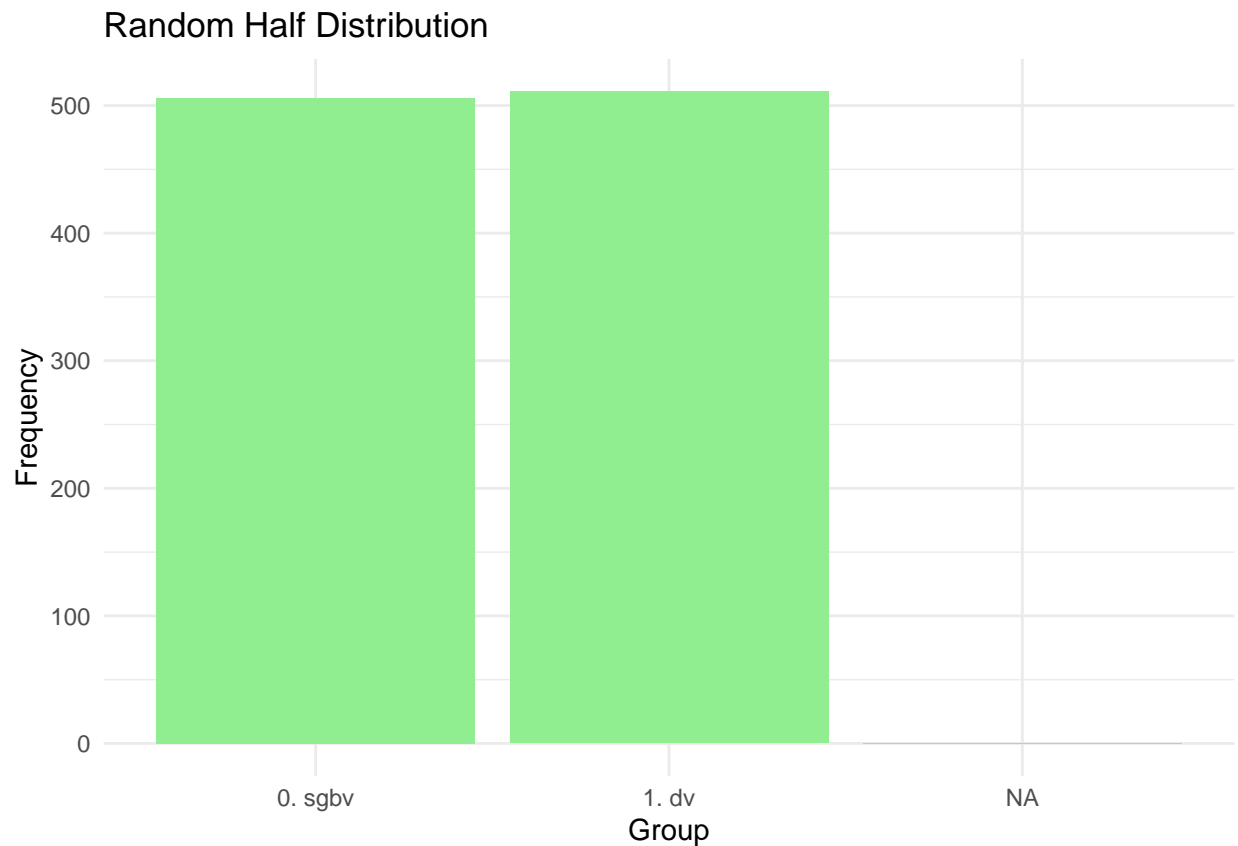
## Plot for Known Victim

```
ggplot(data = as.data.frame(known_victim_table), aes(x = Var1, y = Freq)) +  
  geom_bar(stat = "identity", fill = "skyblue") +  
  labs(title = "Known Victim Distribution", x = "Response", y = "Frequency") +  
  theme_minimal()
```



## Plot for Random Half

```
ggplot(data = as.data.frame(random_half_table), aes(x = Var1, y = Freq)) +  
  geom_bar(stat = "identity", fill = "lightgreen") +  
  labs(title = "Random Half Distribution", x = "Group", y = "Frequency") +  
  theme_minimal()
```



## Data Preparation

Rename columns for easier access

```
data = rename(data, children_girls = `How many of your children are girls?`,  
  education = `What is the highest level of schooling you have completed?`,  
  female_police = `As far as you know, are there any female police officers in the closest police station or police post?`,  
  hh_size = `How many members, INCLUDING YOURSELF, are part of your household?`,  
  land_own_in = `Do you and your husband own land in ${district_label} ?`,  
  marital_status = `What is your marital status?`,  
  police_loc = `Do you know where the nearest police station or police post is?`,  
  time_here = `How long have you lived in ${district_label} ?`,  
  walk_night = `Do you feel comfortable walking around this area alone at night?`,  
  known_victim = `Do you know anyone - or have you heard about anyone - who is a victim of violence?`)
```

```
# Create a new data frame which is required for analysis
data_new <- data %>% dplyr::select("age", "children_girls", "education", "female_police", "hh_size", "i
```

## Data Cleaning and Transformation

### Random half

```
# Random half
data_new$random_half[which(data_new$random_half == '0. sgbv')] <- "sgbv"
data_new$random_half[which(data_new$random_half == '1. dv')] <- "dv"

# Female police
data_new$female_police[which(data_new$female_police == '0. No')] <- "No"
data_new$female_police[which(data_new$female_police == '1. Yes')] <- "Yes"
data_new$female_police[which(data_new$female_police == '98. Don\'t know')] <- "Don\'t know"

# Education
data_new$education[which(data_new$education == '6. College and above')] <- "College and above"
data_new$education[which(data_new$education == '0. None')] <- "None"
data_new$education[which(data_new$education == '1. Madrassa only')] <- "Madrassa"
data_new$education[which(data_new$education == '3. Completed Primary')] <- "Completed Primary"
data_new$education[which(data_new$education == '2. Some Primary')] <- "Some Primary"
data_new$education[which(data_new$education == '5. Completed Secondary')] <- "Completed Secondary"
data_new$education[which(data_new$education == '4. Some Secondary')] <- "Some Secondary"

# Land own in
data_new$land_own_in[which(data_new$land_own_in == '1. Yes')] <- "Yes"
data_new$land_own_in[which(data_new$land_own_in == '0. No')] <- "No"

# Marital status
data_new$marital_status[which(data_new$marital_status == '1. Married')] <- "Married"
data_new$marital_status[which(data_new$marital_status == '2. Single')] <- "Single"
data_new$marital_status[which(data_new$marital_status == '3. Divorced')] <- "Divorced"
data_new$marital_status[which(data_new$marital_status == '5. Separated')] <- "Separated"
data_new$marital_status[which(data_new$marital_status == '4. Widow/widower')] <- "Widow/widower"
data_new$marital_status[which(data_new$marital_status == '99. Refused to answer')] <- "Refused to answer"

# Police location
data_new$police_loc[which(data_new$police_loc == '1. Yes')] <- "Yes"
data_new$police_loc[which(data_new$police_loc == '0. No')] <- "No"

# Time here
data_new$time_here[which(data_new$time_here == '3. More than 5 years')] <- "More than 5 years"
data_new$time_here[which(data_new$time_here == '2. 1-5 years')] <- "1-5 years"
data_new$time_here[which(data_new$time_here == '1. Less than one year')] <- "Less than one year"
data_new$time_here[which(data_new$time_here == '98. Don\'t know')] <- "Don\'t know"
```

```

## Walk Night
data_new$walk_night[which(data_new$walk_night == '2. Yes')] <- "Yes"
data_new$walk_night[which(data_new$walk_night == '0. No')] <- "No"
data_new$walk_night[which(data_new$walk_night == '1. Sometimes')] <- "Sometimes"

## Known victims
data_new$known_victim[which(data_new$known_victim == '1. Yes')] <- "Yes"
data_new$known_victim[which(data_new$known_victim == '0. No')] <- "No"

# sgbv_ideal_outcome1_lab
data_new$sgbv_ideal_outcome1_lab[which(data_new$sgbv_ideal_outcome1_lab == 'Dambiilaha waa la ciqaabay')] <- "Dambiilaha waa la ciqaabay"
data_new$sgbv_ideal_outcome1_lab[which(data_new$sgbv_ideal_outcome1_lab == 'Qofka dhibanaha ahi magdhow ayaa la ciqaabay')] <- "Qofka dhibanaha ahi magdhow"
data_new$sgbv_ideal_outcome1_lab[which(data_new$sgbv_ideal_outcome1_lab == 'Qoyska/kooxda dhibbanaha waxaa la ciqaabay')] <- "Qoyska/kooxda dhibbanaha waxaa"

data_new <- data_new[-(which(data_new$sgbv_ideal_outcome1_lab == 'qofk dhibanaag magdhow yalasiiy mise'))]

# dv_ideal_outcome1_lab
data_new$dv_ideal_outcome1_lab[which(data_new$dv_ideal_outcome1_lab == 'Qofka dhibanaha ahi magdhow ayaa la ciqaabay')] <- "Qofka dhibanaha ahi magdhow"
data_new$dv_ideal_outcome1_lab[which(data_new$dv_ideal_outcome1_lab == 'Dambiilaha waa la ciqaabay')] <- "Dambiilaha waa la ciqaabay"
data_new$dv_ideal_outcome1_lab[which(data_new$dv_ideal_outcome1_lab == 'Qoyska/kooxda dhibbanaha waxaa la ciqaabay')] <- "Qoyska/kooxda dhibbanaha waxaa"

## Deleting NA from random half
colSums(is.na(data_new))

```

```

##          age          children_girls          education
##          1          162              0
##    female_police          hh_size          idp
##          0              0              0
##    land_own_in          majority          marital_status
##          0              19              0
##    police_loc          rural          time_here
##          0              0              0
##    walk_night          known_victim sgbv_ideal_outcome1_lab
##          0              511          602
##    dv_ideal_outcome1_lab          random_half
##          702              0

```

```
unique(data_new$dv_ideal_outcome1_lab)
```

```

## [1] NA
## [2] "The individual victim is compensated or made whole or supported"
## [3] "The offender is punished"
## [4] "The victim's family / group is compensated or made whole or supported"

```

```

# Making factors
data_new$known_victim <- as.factor(data_new$known_victim)
data_new$walk_night <- as.factor(data_new$walk_night)
data_new$time_here <- factor(data_new$time_here, levels = c("Don't know", "Less than one year", "1-5 years"))

data_new$police_loc <- as.factor(data_new$police_loc)

```

```

data_new$marital_status <- as.factor(data_new$marital_status)
data_new$land_own_in <- as.factor(data_new$land_own_in)
data_new$education <- factor(data_new$education, levels = c("None", "Madrassa", "Some Primary", "Comple
data_new$female_police <- as.factor(data_new$female_police)
data_new$random_half <- as.factor(data_new$random_half)
data_new$idp <- as.factor(data_new$idp)
data_new$rural <- as.factor(data_new$rural)
data_new$majority <- as.factor(data_new$majority)
data_new$sgbv_ideal_outcome1_lab <- as.factor(data_new$sgbv_ideal_outcome1_lab)
data_new$dv_ideal_outcome1_lab <- as.factor(data_new$dv_ideal_outcome1_lab)

```

```
str(data_new)
```

```

## tibble [1,016 x 17] (S3: tbl_df/tbl/data.frame)
##   $ age                : num [1:1016] NA 30 30 19 20 38 24 30 38 28 ...
##   $ children_girls      : num [1:1016] NA 4 5 2 NA 0 3 2 3 2 ...
##   $ education           : Ord.factor w/ 7 levels "None"<"Madrassa"<...: 7 1 2 4 4 3 2 2 1 1 ...
##   $ female_police       : Factor w/ 3 levels "Don't know","No",...: 2 3 1 2 3 2 2 2 2 2 ...
##   $ hh_size             : num [1:1016] 7 12 10 5 12 4 6 10 10 9 ...
##   $ idp                 : Factor w/ 2 levels "0","1": 1 1 1 1 1 1 2 2 1 1 ...
##   $ land_own_in         : Factor w/ 2 levels "No","Yes": 2 1 1 1 1 1 1 1 1 1 ...
##   $ majority            : Factor w/ 2 levels "majority","non majority": 2 2 1 2 1 2 2 2 2 2 ...
##   $ marital_status      : Factor w/ 6 levels "Divorced","Married",...: 2 2 2 2 5 1 4 4 2 2 ...
##   $ police_loc          : Factor w/ 2 levels "No","Yes": 2 2 2 1 2 2 2 2 2 2 ...
##   $ rural               : Factor w/ 2 levels "0","1": 1 1 1 1 1 2 1 1 1 1 ...
##   $ time_here           : Ord.factor w/ 4 levels "Don't know"<"Less than one year"<...: 4 3 4 4 4 4 ...
##   $ walk_night          : Factor w/ 3 levels "No","Sometimes",...: 1 3 3 3 1 3 3 1 1 3 ...
##   $ known_victim        : Factor w/ 2 levels "No","Yes": 2 NA 1 2 2 NA NA 1 NA NA ...
##   $ sgbv_ideal_outcome1_lab: Factor w/ 3 levels "The individual victim is compensated or made whole o
##   $ dv_ideal_outcome1_lab : Factor w/ 3 levels "The individual victim is compensated or made whole o
##   $ random_half         : Factor w/ 2 levels "dv","sgbv": 2 1 2 2 2 1 1 2 1 1 ...

```

```
#class(data_new$time_here)
```

```

data.group.random_half <- group_by(data_new, random_half)
#get_summary_stats(data.group.random_half, children_girls, type = "mean_sd")

table(data.group.random_half$random_half, data.group.random_half$female_police)

```

```

##
##      Don't know  No Yes
##   dv          55 249 207
##   sgbv         60 255 190

```

## Summary statistics

```
summary(data_new)
```

```
##      age      children_girls      education      female_police
```



```

## Min. :15.00 Min. : 0.000 None :473 Don't know:115
## 1st Qu.:25.00 1st Qu.: 1.000 Madrassa :241 No :504
## Median :30.00 Median : 3.000 Some Primary :128 Yes :397
## Mean :32.62 Mean : 2.738 Completed Primary : 56
## 3rd Qu.:39.00 3rd Qu.: 4.000 Some Secondary : 29
## Max. :88.00 Max. :10.000 Completed Secondary: 42
## NA's :1 NA's :162 College and above : 47
## hh_size idp land_own_in majority
## Min. : 0.000 0:804 No :765 majority :307
## 1st Qu.: 6.000 1:212 Yes:251 non majority:690
## Median : 9.000 NA's : 19
## Mean : 8.885
## 3rd Qu.:11.000
## Max. :30.000
##
## marital_status police_loc rural time_here
## Divorced :156 No :195 0:910 Don't know : 6
## Married :635 Yes:821 1:106 Less than one year: 22
## Refused to answer: 1 1-5 years :233
## Separated : 14 More than 5 years :755
## Single :131
## Widow/widower : 79
##
## walk_night known_victim
## No :409 No :302
## Sometimes: 77 Yes :203
## Yes :530 NA's:511
##
##
##
## sgbv_ideal_outcome1_lab
## The individual victim is compensated or made whole or supported :117
## The offender is punished :228
## The victim's family / group is compensated or made whole or supported: 69
## NA's :602
##
##
## dv_ideal_outcome1_lab
## The individual victim is compensated or made whole or supported :109
## The offender is punished :141
## The victim's family / group is compensated or made whole or supported: 64
## NA's :702
##
##
## random_half
## dv :511
## sgbv:505
##
##
##

```

```
##
```

## Tables and Chi-square test for sgbv data

```
data_sgbv <- filter(data_new, random_half == 'sgbv')
table_sgbv_rural_police <- table(data_sgbv$rural, data_sgbv$police_loc)

addmargins(table_sgbv_rural_police)
```

```
##
##      No Yes Sum
##  0    71 377 448
##  1    17  40  57
## Sum   88 417 505
```

```
addmargins(prop.table(table_sgbv_rural_police))
```

```
##
##              No          Yes          Sum
##  0  0.14059406 0.74653465 0.88712871
##  1  0.03366337 0.07920792 0.11287129
## Sum 0.17425743 0.82574257 1.00000000
```

```
chisq.test(data_sgbv$rural, data_sgbv$police_loc)
```

```
##
## Pearson's Chi-squared test with Yates' continuity correction
##
## data:  data_sgbv$rural and data_sgbv$police_loc
## X-squared = 5.9276, df = 1, p-value = 0.01491
```

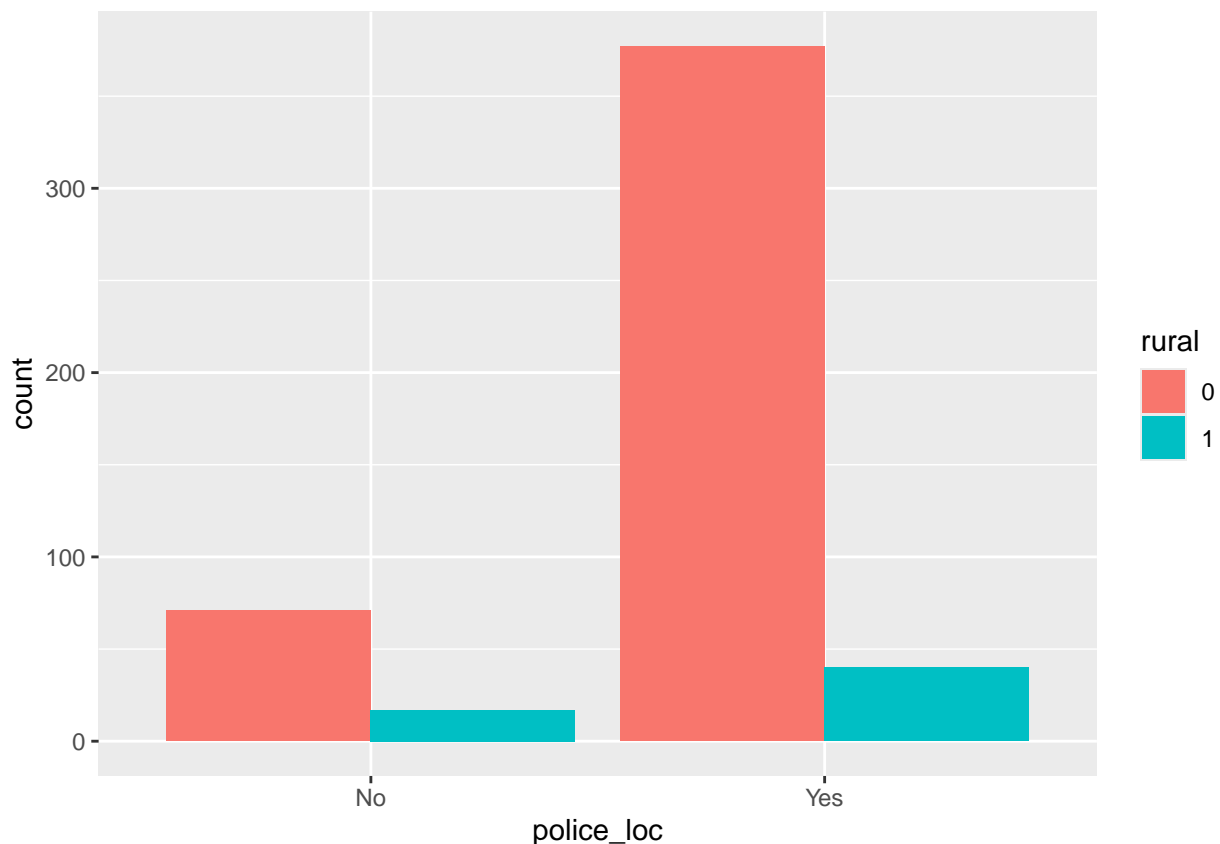
Based on the results of the chi-square test generated above, p-value is 0.014, which is less than 0.05. This implies that there is a statistically significant relationship between the rural and police\_loc variable.

```
sgbv_table <- data_sgbv %>% count(police_loc, rural, sort = TRUE)
sgbv_table
```

```
## # A tibble: 4 x 3
##   police_loc rural      n
##   <fct>      <fct> <int>
## 1 Yes        0     377
## 2 No         0      71
## 3 Yes        1      40
## 4 No         1      17
```

## Plotting the relationship between police location and rural/urban status

```
ggplot(data = data_sgbv) +
  geom_bar(mapping = aes(x = police_loc, fill = rural), position = "dodge")
```



From the above bar graph it is evident that people who have stayed more than 5 years in urban area know more about sgbv cases. Also, people who live in urban areas and has a police station nearby also knows more about such cases.

## Women's differing priorities in resolving cases of IPV vs cases of rape.

### Ideal outcomes by random half

```
(ideal_random_table <- data_new %>% count(sgbv_ideal_outcome1_lab, dv_ideal_outcome1_lab, random_half, ...))
```

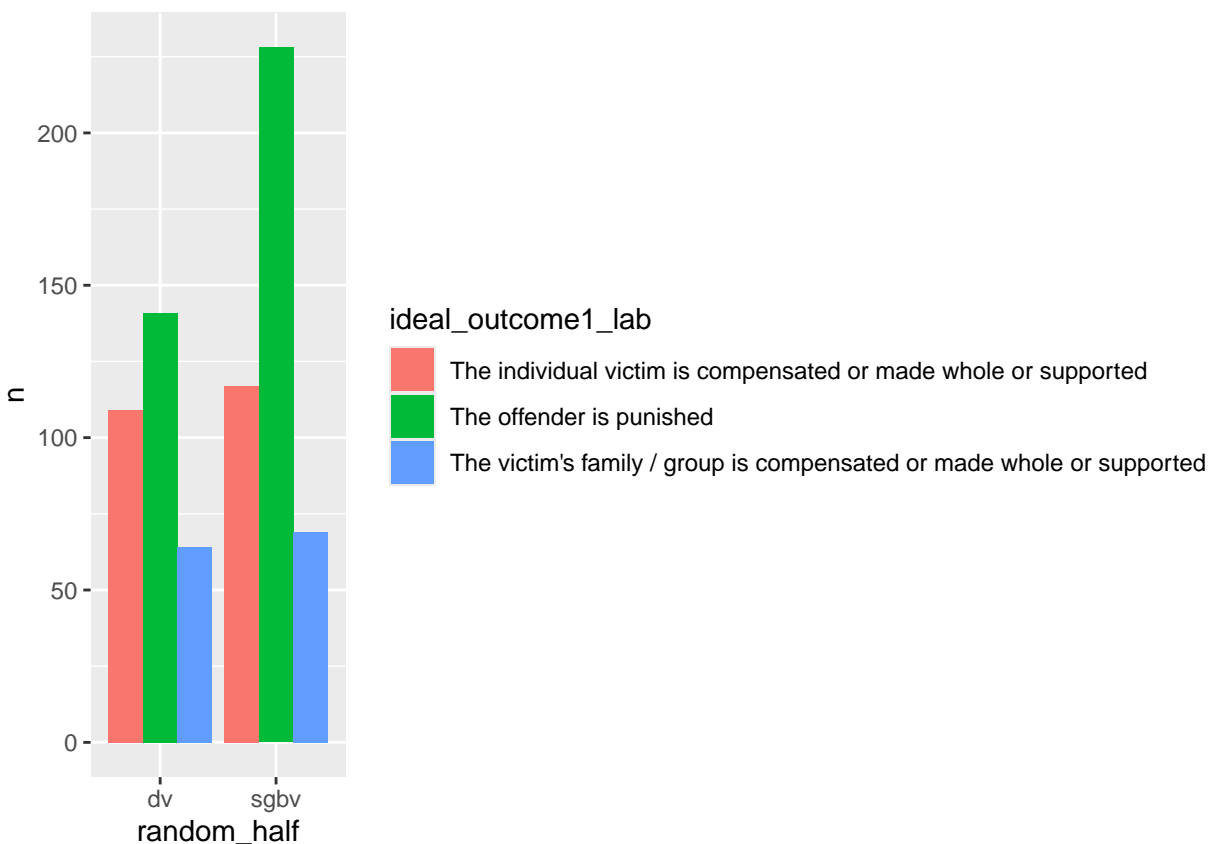
```
## # A tibble: 8 x 4
##   sgbv_ideal_outcome1_lab      dv_ideal_outcome1_lab random_half      n
##   <fct>                  <fct>                <fct>    <int>
## 1 The offender is punished <NA>                  sgbv      228
## 2 <NA>                   <NA>                  dv       197
## 3 <NA>                   The offender is puni~ dv       141
## 4 The individual victim is compensated ~ <NA>                  sgbv     117
## 5 <NA>                   The individual victi~ dv      109
## 6 <NA>                   <NA>                  sgbv      91
## 7 The victim's family / group is compen~ <NA>                  sgbv      69
```

```
ideal_random_table_new <- ideal_random_table %>%
  filter(!is.na(dv_ideal_outcome1_lab) | !is.na(sgbv_ideal_outcome1_lab))
```

Fill missing dv\_ideal\_outcome1\_lab with sgbv\_ideal\_outcome1\_lab values

```
ideal_random_table_new <- ideal_random_table_new %>%
  mutate(dv_ideal_outcome1_lab = if_else(!is.na(sgbv_ideal_outcome1_lab), sgbv_ideal_outcome1_lab, dv_i
  select(-sgbv_ideal_outcome1_lab) %>%
  rename(ideal_outcome1_lab = dv_ideal_outcome1_lab)
```

```
ggplot(data = ideal_random_table_new) +
  geom_bar(mapping = aes(x = random_half, y = n, fill = ideal_outcome1_lab), position = "dodge", stat = "
```

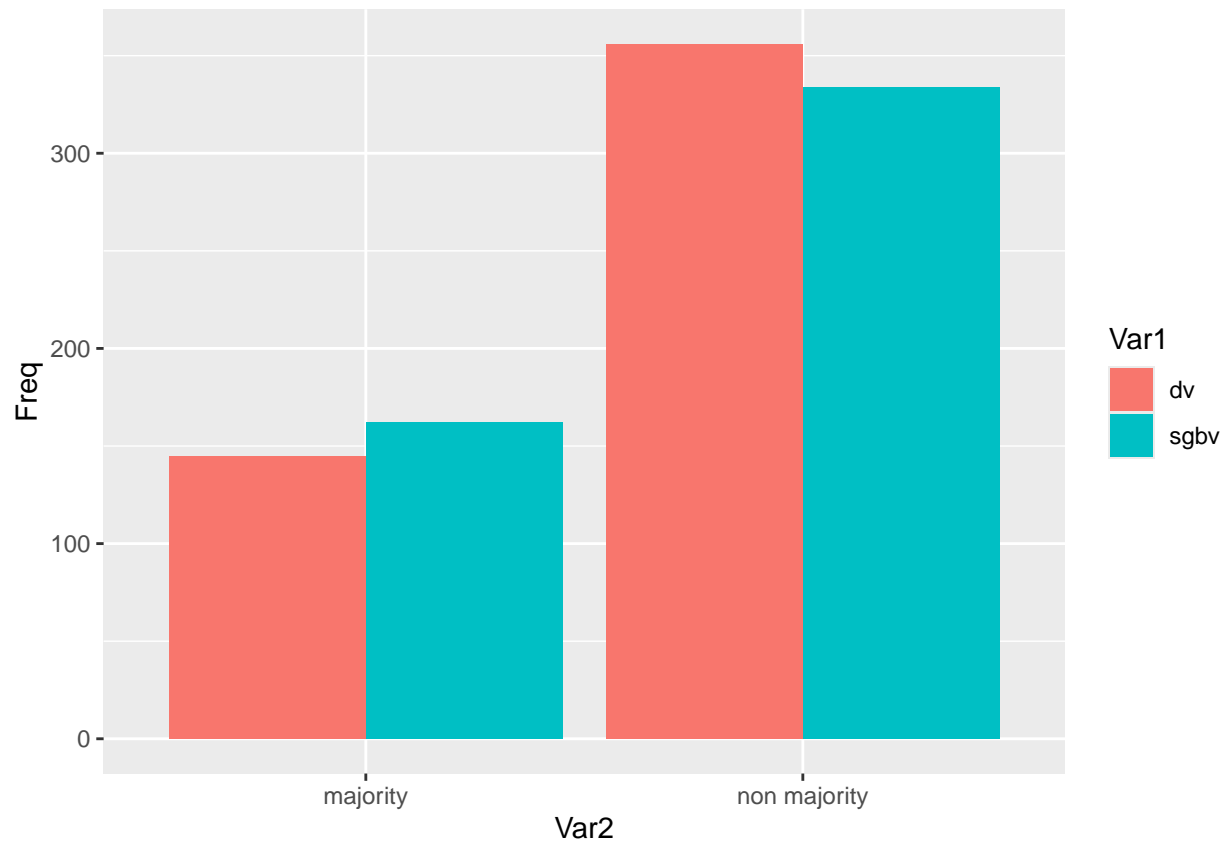


Potential implications of differences in subgroups on any analysis which compares responses of the two subgroups

```
(data_majority_table <- data.frame(table(data.group.random_half$random_half, data.group.random_half$maj
```

```
##   Var1      Var2 Freq
## 1  dv    majority 145
## 2 sgbv    majority 162
## 3  dv non majority 356
## 4 sgbv non majority 334
```

```
ggplot(data = data_majority_table) +
  geom_bar(mapping = aes(x = Var2 ,y = Freq, fill = Var1), position = "dodge", stat = "identity")
```



From the above bar graph it, we can see non-majority people in the clan are more tend to dv and sgbv then majority people.