

poa__access

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6.1) People who had difficulty accessing resources [20]

Run binary distribution over population Indicators: food, PPE, transportation, housing Yes = 1+ indicators No = 0 indicators Run binary distribution by sub-demographics Compare and find gaps (test unequal proportions) Run categorical distribution over population Run categorical distribution over sub-demographics Compare and find gaps (test unequal proportions)

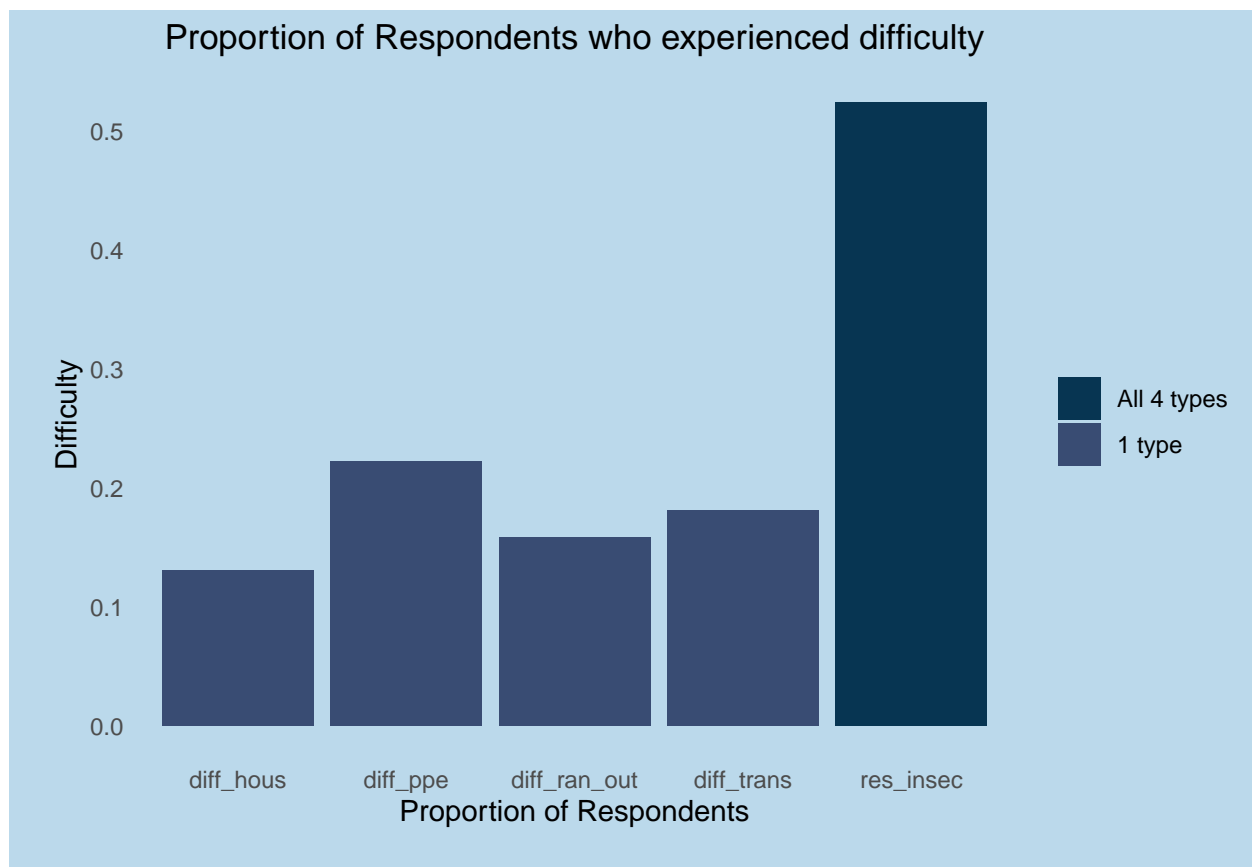
```
attributes(wrangled$res_insec)$labels
```

```
## difficulty accessing or ran out of food, housing, cleaning supplies or transportation 1
##
## no difficulty accessing food, housing, cleaning supplies or transportation 0
##
```

```
mean(wrangled$res_insec, na.rm = TRUE)
```

```
## [1] 0.5236552
```

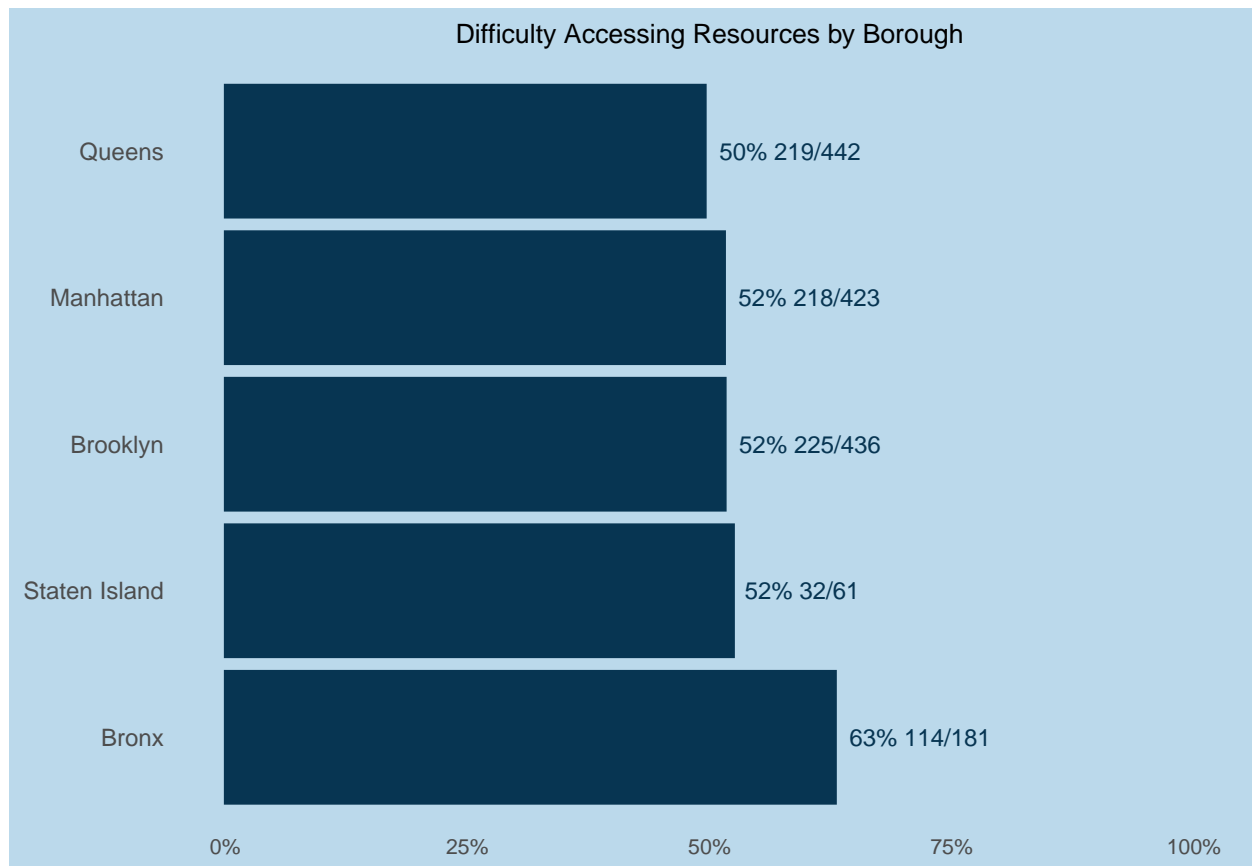
```
wrangled %>%
  mutate(across(c(diff_ran_out, diff_ppe, res_insec, diff_trans, diff_hous), as.integer)) %>%
  pivot_longer(cols = c("diff_ran_out", "diff_ppe", "res_insec", "diff_trans", "diff_hous")) %>%
  select(name, value) %>% group_by(name) %>% summarize(value = mean(value, na.rm = TRUE)) %>%
  mutate(analysis_variable = labelled(as.integer(name == "res_insec"), c("All 4 types" = 1, "1 type" = 0)))
ggplot(aes(x = name, y = value, fill = labelled::to_factor(analysis_variable))) + geom_col() +
  xlab("Proportion of Respondents\n") + ylab("\nDifficulty") +
  ggtitle("Proportion of Respondents who experienced difficulty") +
  scale_fill_manual(NULL, values = project_pal)
```



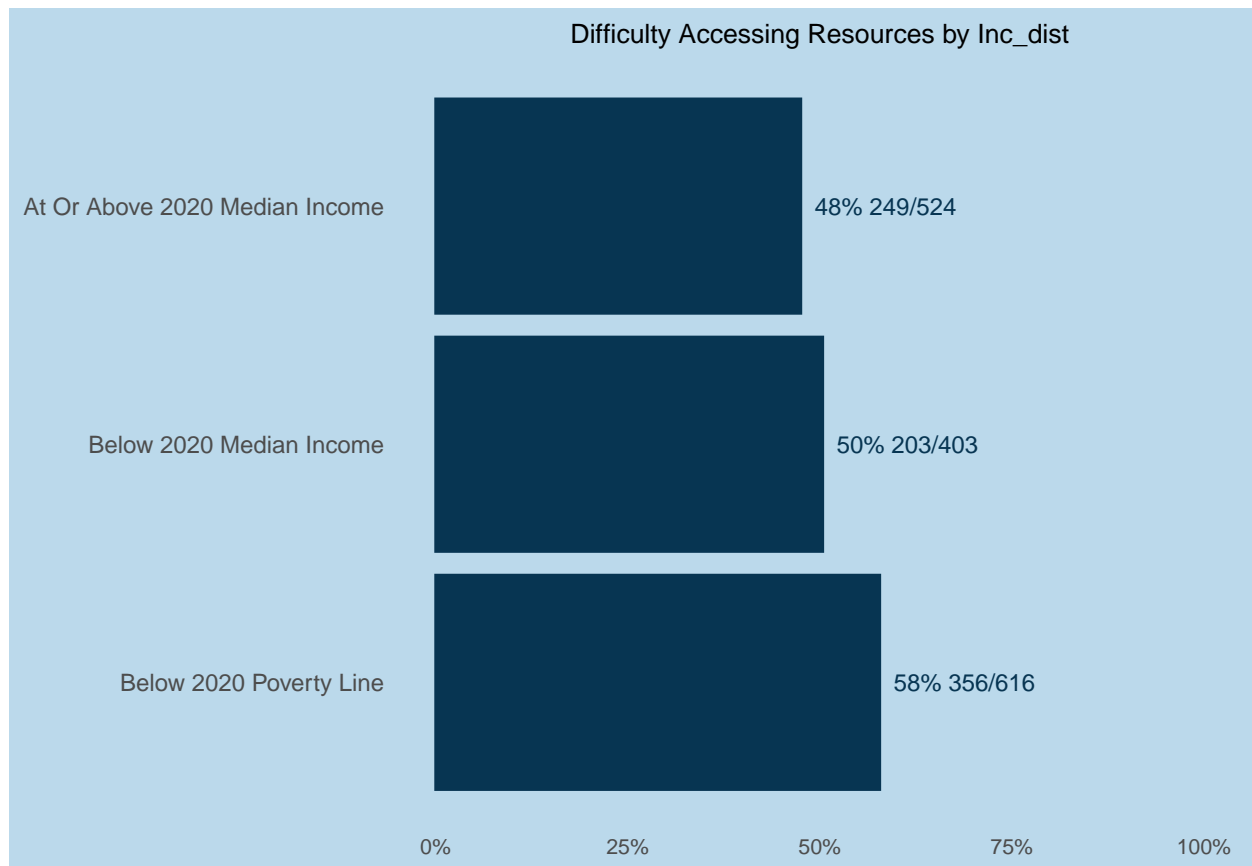
```
# make a venn diagram
```

```
make_plots(wrangled, demographics, "res_insec", title = "Difficulty Accessing Resources")
```

```
## $borough
## $borough$plot
```



```
##
## $borough$p.values
## $borough$p.values$res_insec
##      queens manhattan brooklyn staten island bronx
## queens      NA      NA      NA      NA 0.003
## manhattan    NA      NA      NA      NA  NA
## brooklyn      NA      NA      NA      NA  NA
## staten island  NA      NA      NA      NA  NA
## bronx         0.003    NA      NA      NA  NA
##
##
##
## $gen
## NULL
##
## $race_census
## NULL
##
## $hh_ch_0_17_bi
## NULL
##
## $hh_sn_65_bi
## NULL
##
## $inc_dist
## $inc_dist$plot
```



```
##
## $inc_dist$p.values
## $inc_dist$p.values$res_insec
##               at or above 2020 median income
## at or above 2020 median income             NA
## below 2020 median income                   NA
## below 2020 poverty line                     0.00066
##               below 2020 median income below 2020 poverty line
## at or above 2020 median income             NA             0.00066
## below 2020 median income                   NA             NA
## below 2020 poverty line                     NA             NA
```

6.2) Local resource utilized over each challenge[33]

Run distribution of each resource people would turn to for each challenge over population Run distribution of each resource people would turn to for each challenge over sub-demographics (a-k) Compare and find gaps (test unequal proportions)

```
mean(str_detect(wrangled$lr_cc, ";"), na.rm = TRUE)
```

```
## [1] 0.2085561
```

```

# lots of respondents just marked off not sure

resource_qs <- c("lr_fam", "lr_gov", "lr_fb", "lr_np")
names(resource_qs) <- resource_qs

lapply(resource_qs, function(q) {

  sym_q <- sym(q)

  pattern <- str_replace(q, "_", "_stress_")
  replacement <- survey_codebook_labelled$to_name[str_which(survey_codebook_labelled$full_name,
                                                             pattern)]

  df <- wrangled %>% mutate(across(all_of(demographics),
                                   ~str_replace_all(labelled::to_factor(.),
                                                    c("transgender.*" = "transgender",
                                                      "indigenous.*" = "Indigenous American"))))

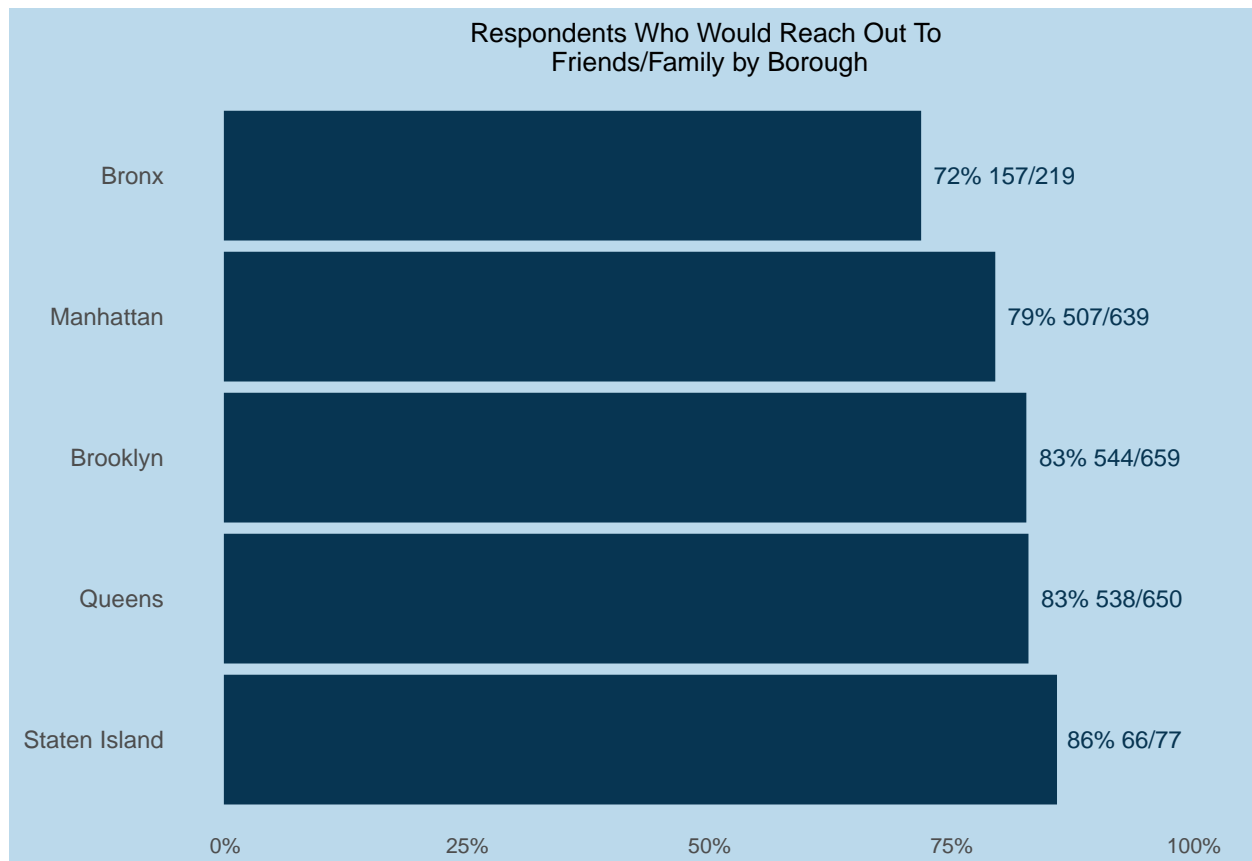
  make_plots(df, by_vars = demographics, hyp_var = q,
             title = glue::glue("Respondents who would reach out to \n {replacement}"))
})

```

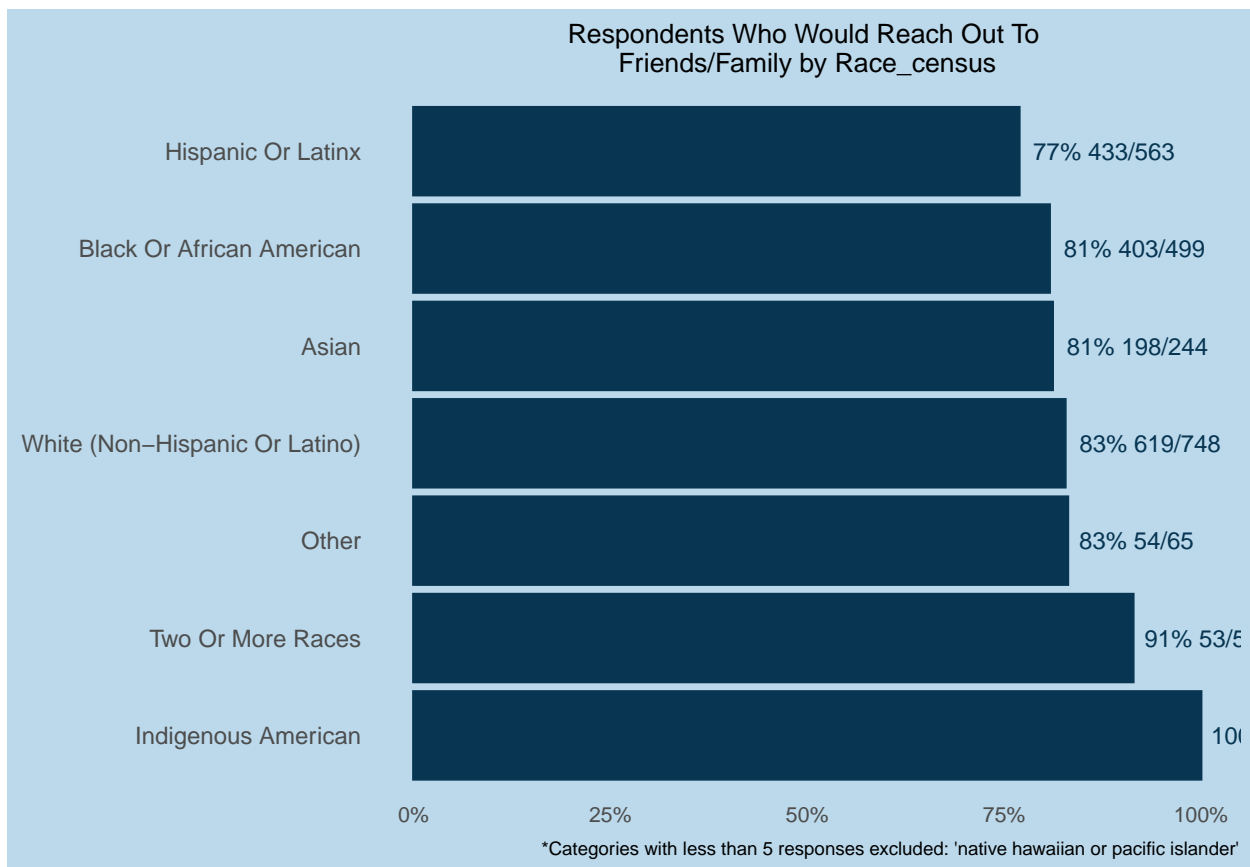
```

## $lr_fam
## $lr_fam$borough
## $lr_fam$borough$plot

```



```
##
## $lr_fam$borough$p.values
## $lr_fam$borough$p.values$lr_fam
##           bronx manhattan brooklyn queens staten island
## bronx           NA         NA  0.00074 0.00057           NA
## manhattan        NA         NA         NA         NA         NA
## brooklyn      0.00074         NA         NA         NA         NA
## queens         0.00057         NA         NA         NA         NA
## staten island    NA         NA         NA         NA         NA
##
##
##
## $lr_fam$gen
## NULL
##
## $lr_fam$race_census
## $lr_fam$race_census$plot
```

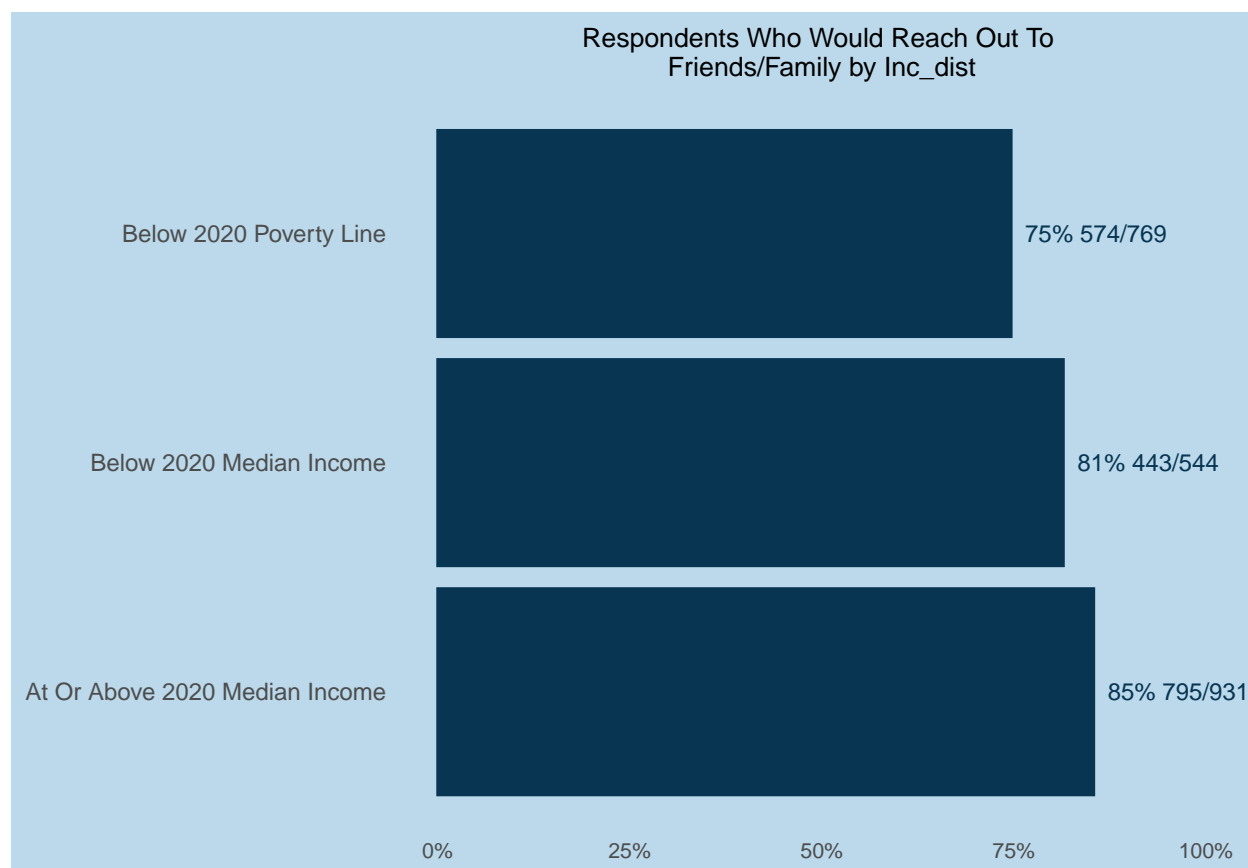


```
##
## $lr_fam$race_census$p.values
## $lr_fam$race_census$p.values$lr_fam
##           hispanic or latinx black or african american
## hispanic or latinx           NA                       NA
## black or african american      NA                       NA
## asian                          NA                       NA
```

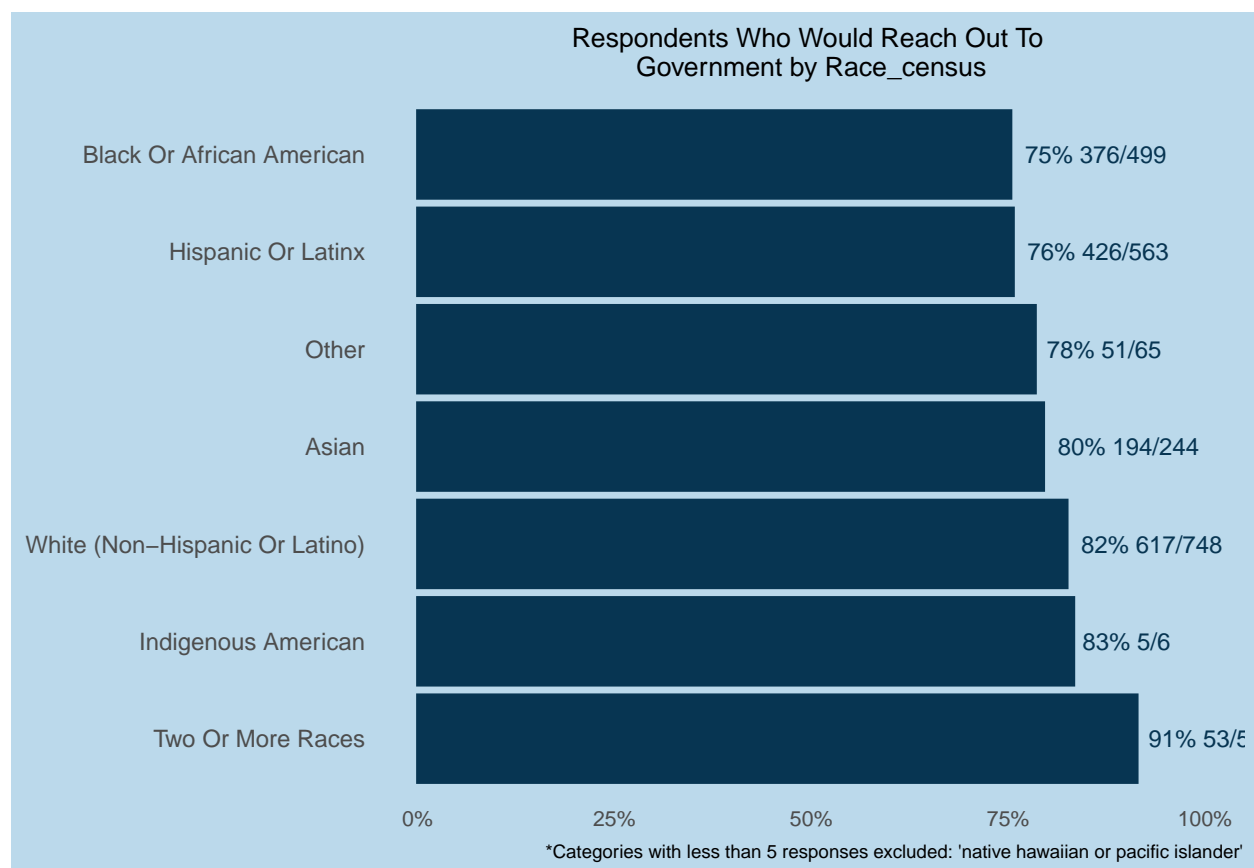
```

## white (non-hispanic or latino)          0.01          NA
## other                                   NA          NA
## two or more races                       NA          NA
## Indigenous American                     NA          NA
##
##               asian white (non-hispanic or latino) other
## hispanic or latinx                     NA          0.01   NA
## black or african american              NA          NA    NA
## asian                                  NA          NA    NA
## white (non-hispanic or latino)         NA          NA    NA
## other                                   NA          NA    NA
## two or more races                       NA          NA    NA
## Indigenous American                     NA          NA    NA
##
##               two or more races Indigenous American
## hispanic or latinx                     NA          NA
## black or african american              NA          NA
## asian                                  NA          NA
## white (non-hispanic or latino)         NA          NA
## other                                   NA          NA
## two or more races                       NA          NA
## Indigenous American                     NA          NA
##
##
##
## $lr_fam$hh_ch_0_17_bi
## NULL
##
## $lr_fam$hh_sn_65_bi
## NULL
##
## $lr_fam$inc_dist
## $lr_fam$inc_dist$plot

```

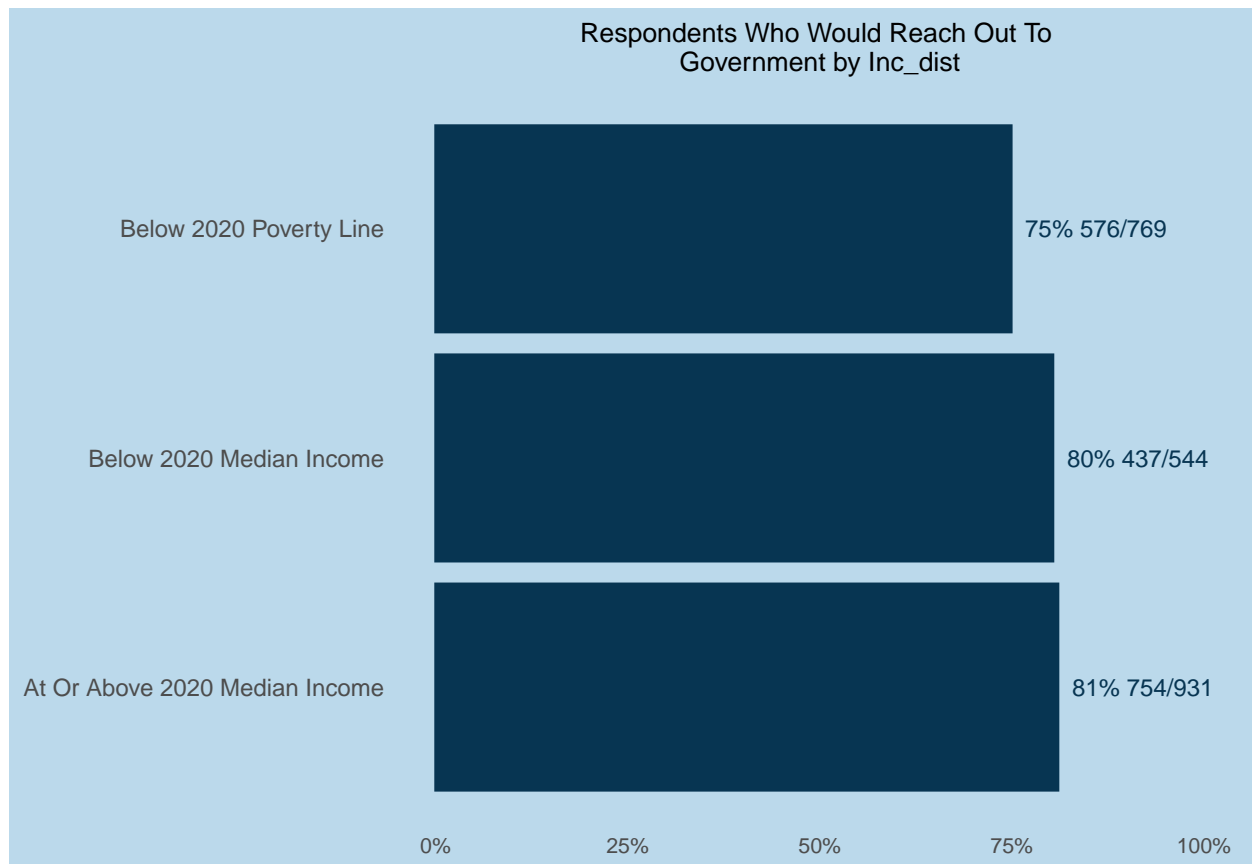


```
##
## $lr_fam$inc_dist$p.values
## $lr_fam$inc_dist$p.values$lr_fam
##
##          below 2020 poverty line  below 2020 median income
## below 2020 poverty line          NA          0.0046
## below 2020 median income        4.6e-03          NA
## at or above 2020 median income    3.6e-08          NA
##
##          at or above 2020 median income
## below 2020 poverty line          3.6e-08
## below 2020 median income          NA
## at or above 2020 median income    NA
##
##
##
## $lr_gov
## $lr_gov$borough
## NULL
##
## $lr_gov$gen
## NULL
##
## $lr_gov$race_census
## $lr_gov$race_census$plot
```

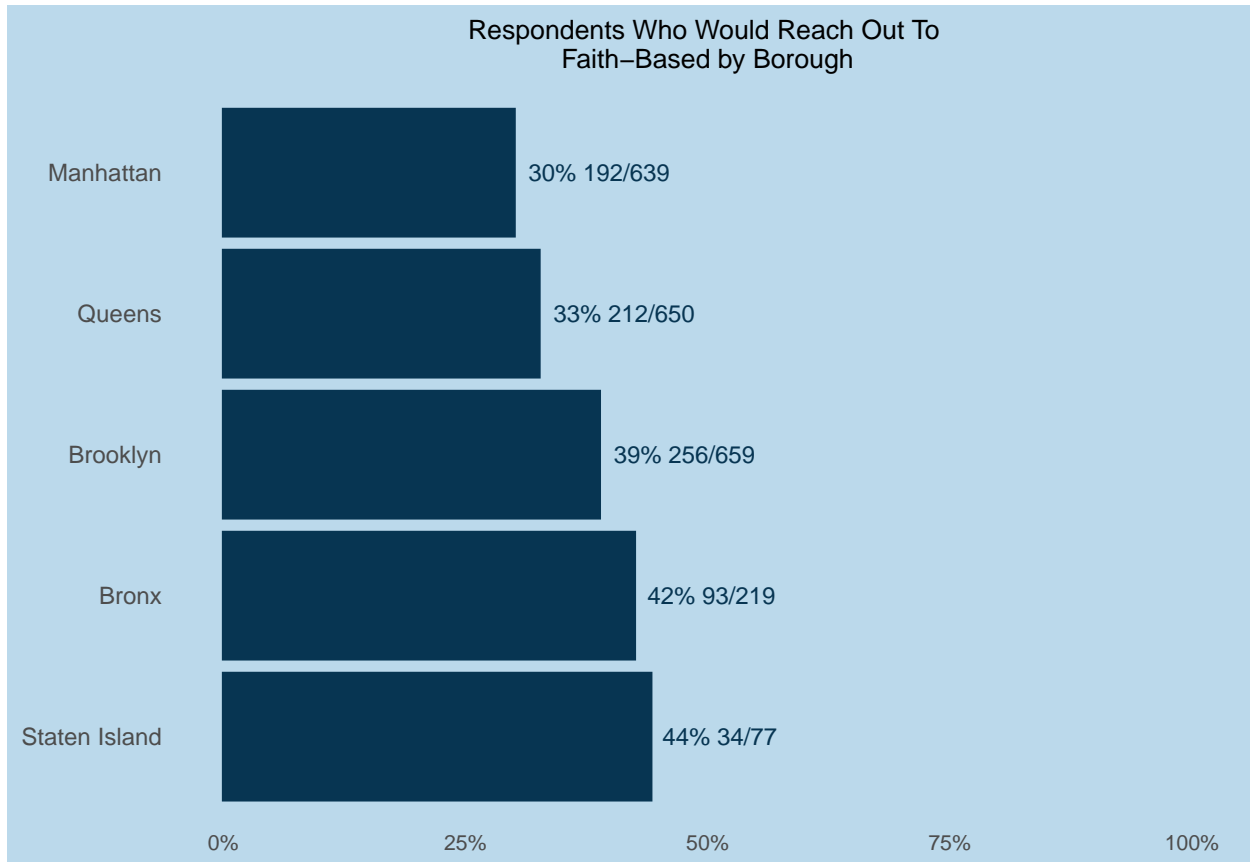
```
##
## $lrGov$race_census$p.values
## $lrGov$race_census$p.values$lrGov
##           black or african american hispanic or latinx
## black or african american           NA                NA
## hispanic or latinx                 NA                NA
## other                             NA                NA
## asian                             NA                NA
## white (non-hispanic or latino)     0.0028            0.0031
## Indigenous American                NA                NA
## two or more races                  0.0098            NA
##           other asian white (non-hispanic or latino)
## black or african american      NA    NA                0.0028
## hispanic or latinx             NA    NA                0.0031
## other                          NA    NA                NA
## asian                          NA    NA                NA
## white (non-hispanic or latino) NA    NA                NA
## Indigenous American            NA    NA                NA
## two or more races              NA    NA                NA
##           Indigenous American two or more races
## black or african american      NA                0.0098
## hispanic or latinx             NA                NA
## other                          NA                NA
## asian                          NA                NA
## white (non-hispanic or latino) NA                NA
## Indigenous American            NA                NA
```

```
## two or more races
##
##
##
## $lrGov$hh_ch_0_17_bi
## NULL
##
## $lrGov$hh_sn_65_bi
## NULL
##
## $lrGov$inc_dist
## $lrGov$inc_dist$plot
```

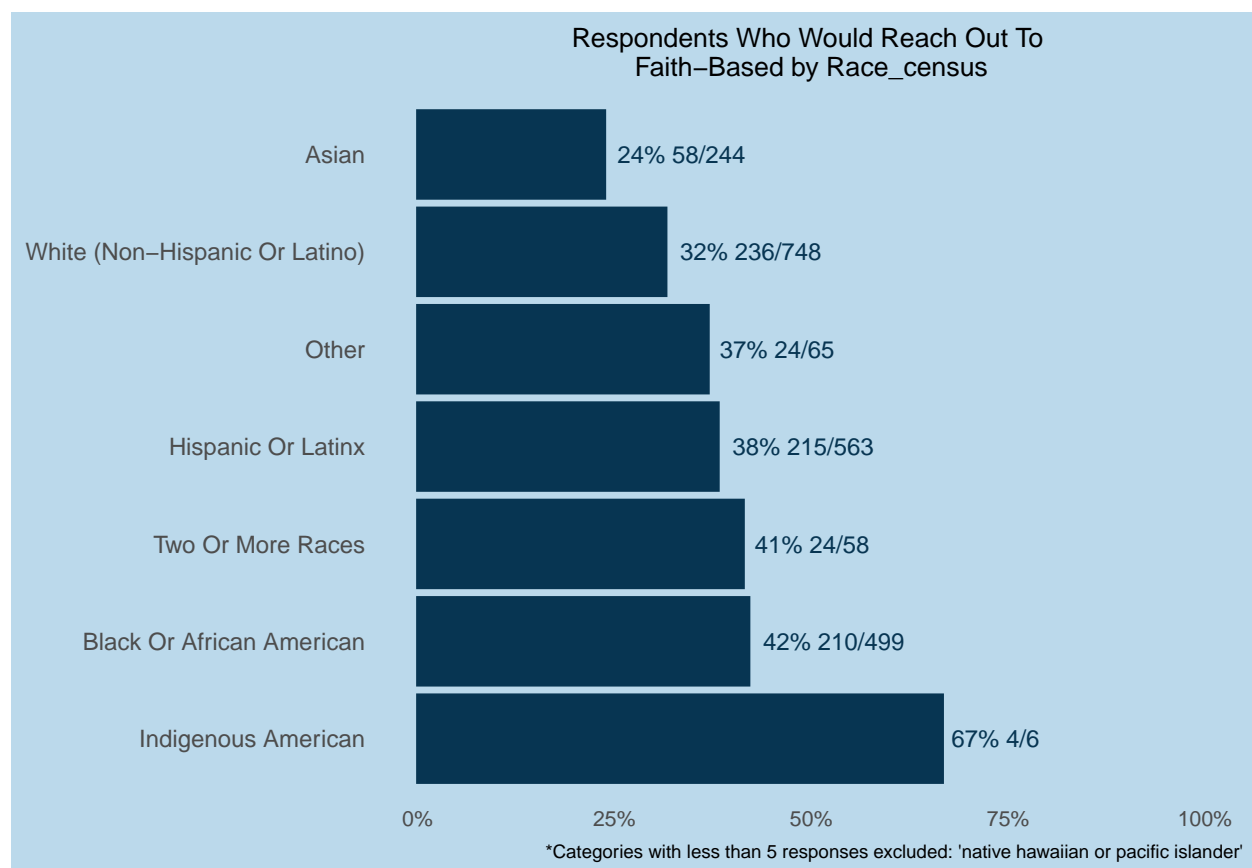


```
##
## $lrGov$inc_dist$p.values
## $lrGov$inc_dist$p.values$lrGov
##
## below 2020 poverty line below 2020 median income
## below 2020 poverty line NA NA
## below 2020 median income NA NA
## at or above 2020 median income 0.003 NA
##
## at or above 2020 median income
## below 2020 poverty line 0.003
## below 2020 median income NA
## at or above 2020 median income NA
##
```

```
##
##
##
## $lr_fb
## $lr_fb$borough
## $lr_fb$borough$plot
```

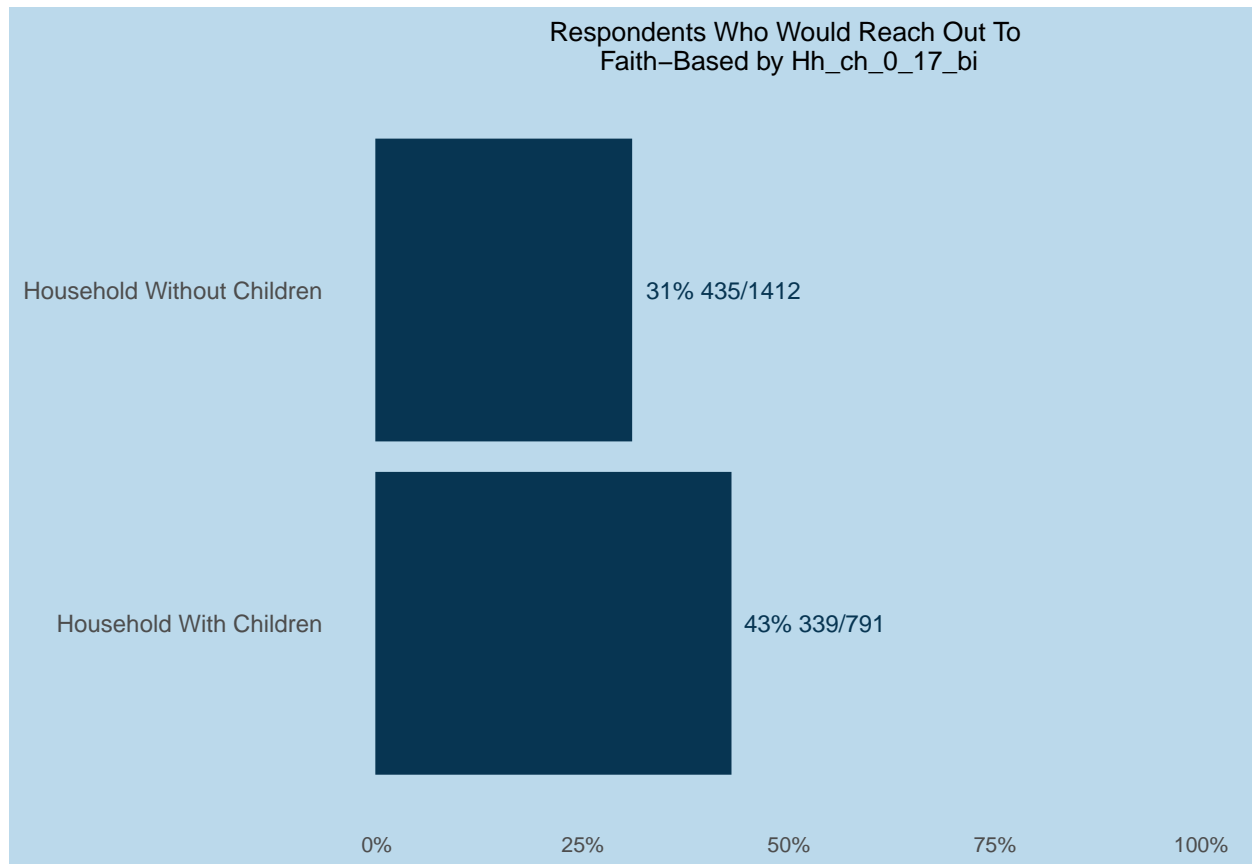


```
##
## $lr_fb$borough$p.values
## $lr_fb$borough$p.values$lr_fb
##      manhattan queens brooklyn bronx staten island
## manhattan      NA      NA    0.0011 0.001          NA
## queens          NA      NA      NA 0.010          NA
## brooklyn      0.0011      NA      NA  NA          NA
## bronx          0.0010  0.01      NA  NA          NA
## staten island      NA      NA      NA  NA          NA
##
##
##
## $lr_fb$gen
## NULL
##
## $lr_fb$race_census
## $lr_fb$race_census$plot
```

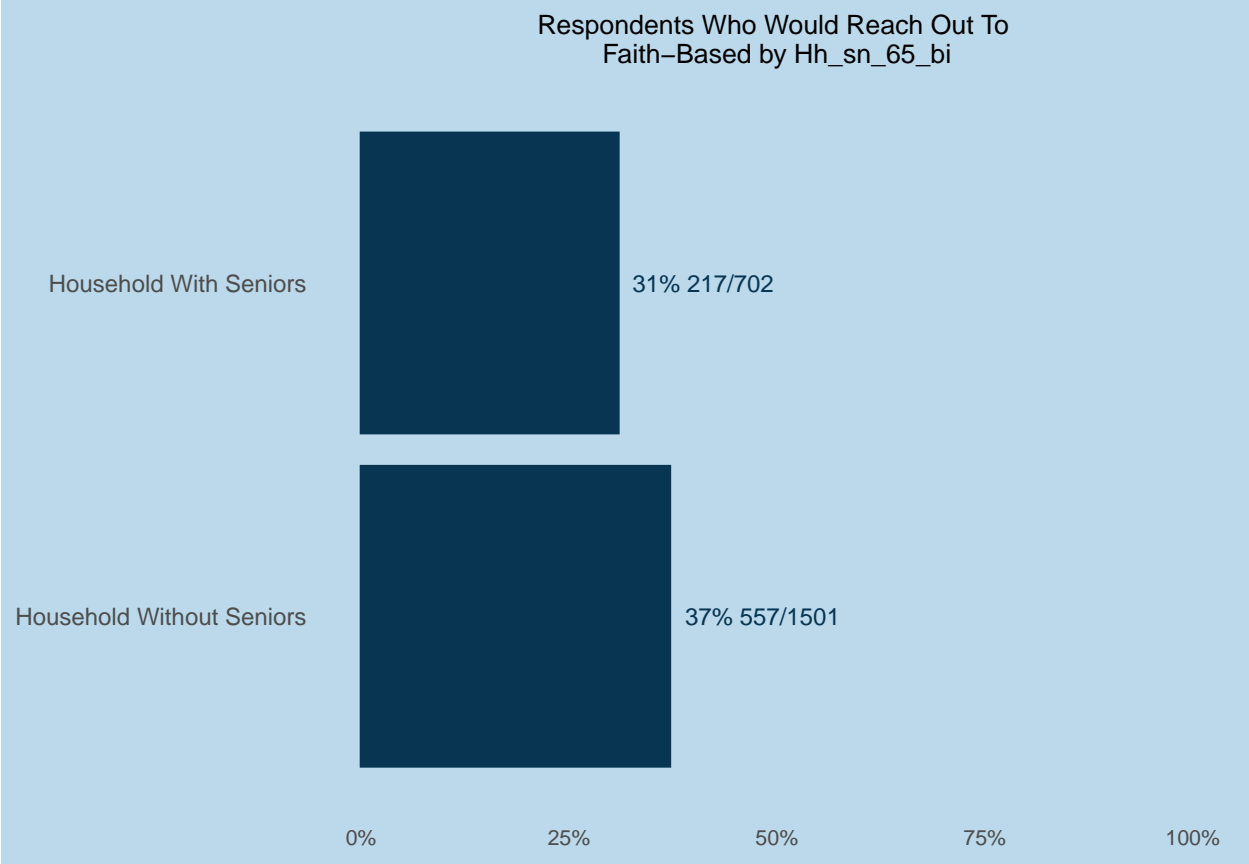


```
##
## $lr_fb$race_census$p.values
## $lr_fb$race_census$p.values$lr_fb
##               asian white (non-hispanic or latino) other
## asian               NA                      NA      NA
## white (non-hispanic or latino)      NA                      NA      NA
## other               NA                      NA      NA
## hispanic or latinx    9.8e-05                  NA      NA
## two or more races      NA                      NA      NA
## black or african american    1.6e-06                0.00018      NA
## Indigenous American      NA                      NA      NA
##               hispanic or latinx two or more races
## asian               9.8e-05                  NA
## white (non-hispanic or latino)      NA                      NA
## other               NA                      NA
## hispanic or latinx      NA                      NA
## two or more races      NA                      NA
## black or african american      NA                      NA
## Indigenous American      NA                      NA
##               black or african american Indigenous American
## asian               1.6e-06                      NA
## white (non-hispanic or latino)    1.8e-04                      NA
## other               NA                      NA
## hispanic or latinx      NA                      NA
## two or more races      NA                      NA
## black or african american      NA                      NA
```

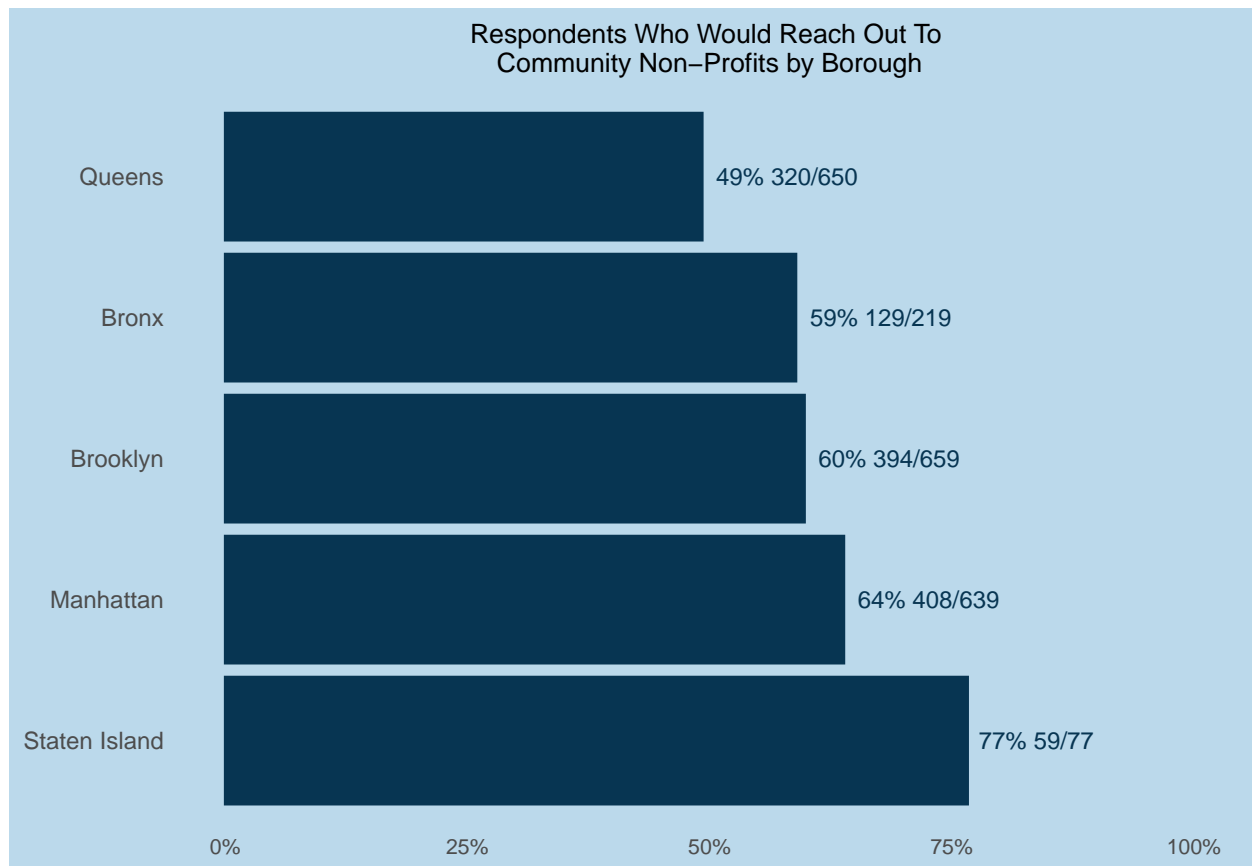
```
## Indigenous American          NA          NA
##
##
##
## $lr_fb$hh_ch_0_17_bi
## $lr_fb$hh_ch_0_17_bi$plot
```



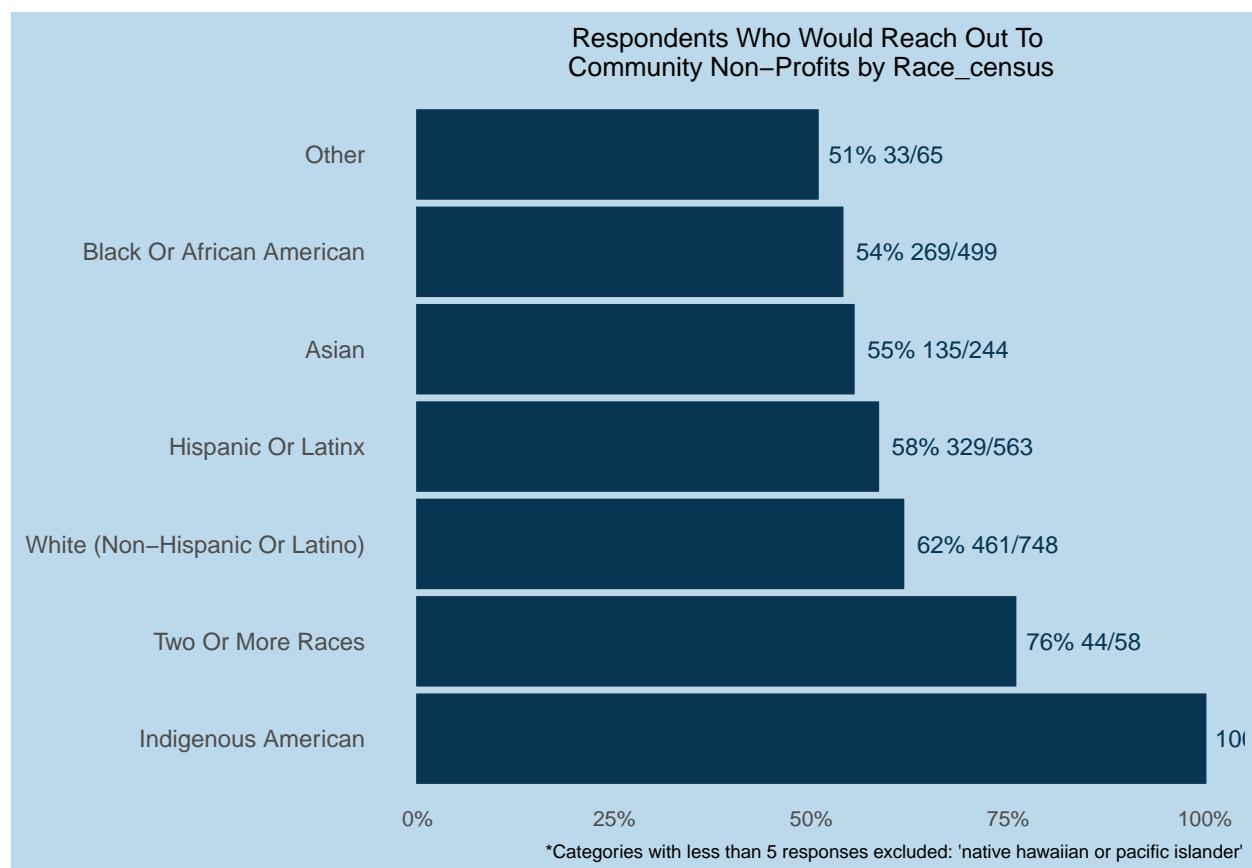
```
##
## $lr_fb$hh_ch_0_17_bi$p.values
## $lr_fb$hh_ch_0_17_bi$p.values$lr_fb
##          household without children household with children
## household without children          NA          1.7e-08
## household with children          1.7e-08          NA
##
##
##
## $lr_fb$hh_sn_65_bi
## $lr_fb$hh_sn_65_bi$plot
```



```
##
## $lr_fb$hh_sn_65_bi$p.values
## $lr_fb$hh_sn_65_bi$p.values$lr_fb
##           household with seniors household without seniors
## household with seniors           NA           0.0053
## household without seniors       0.0053           NA
##
##
##
## $lr_fb$inc_dist
## NULL
##
##
## $lr_np
## $lr_np$borough
## $lr_np$borough$plot
```



```
##
## $l_r_np$borough$p.values
## $l_r_np$borough$p.values$l_r_np
##      queens  bronx  brooklyn  manhattan  staten island
## queens      NA    NA  0.00016  1.6e-07  9.5e-06
## bronx        NA    NA      NA      NA      8.3e-03
## brooklyn     1.6e-04  NA      NA      NA      6.0e-03
## manhattan    1.6e-07  NA      NA      NA      NA
## staten island 9.5e-06 0.0083  0.00600  NA      NA
##
##
##
## $l_r_np$gen
## NULL
##
## $l_r_np$race_census
## $l_r_np$race_census$plot
```



```
##
## $lr_np$race_census$p.values
## $lr_np$race_census$p.values$lr_np
##
##      other black or african american  asian
## other                NA                NA    NA
## black or african american          NA    NA
## asian                NA                NA    NA
## hispanic or latinx              NA    NA
## white (non-hispanic or latino)    NA    0.0080    NA
## two or more races    0.0073          0.0023 0.0067
## Indigenous American          NA                NA    NA
##
##      hispanic or latinx
## other                NA
## black or african american          NA
## asian                NA
## hispanic or latinx              NA
## white (non-hispanic or latino)    NA
## two or more races              NA
## Indigenous American          NA
##
##      white (non-hispanic or latino) two or more races
## other                NA                0.0073
## black or african american          0.008          0.0023
## asian                NA                0.0067
## hispanic or latinx              NA                NA
## white (non-hispanic or latino)    NA                NA
## two or more races              NA                NA
```



```
## Indigenous American      NA      NA
##      Indigenous American
## other                    NA
## black or african american    NA
## asian                     NA
## hispanic or latinx          NA
## white (non-hispanic or latino) NA
## two or more races          NA
## Indigenous American        NA
##
##
## $l_r_np$hh_ch_0_17_bi
## NULL
##
## $l_r_np$hh_sn_65_bi
## NULL
##
## $l_r_np$inc_dist
## NULL
```

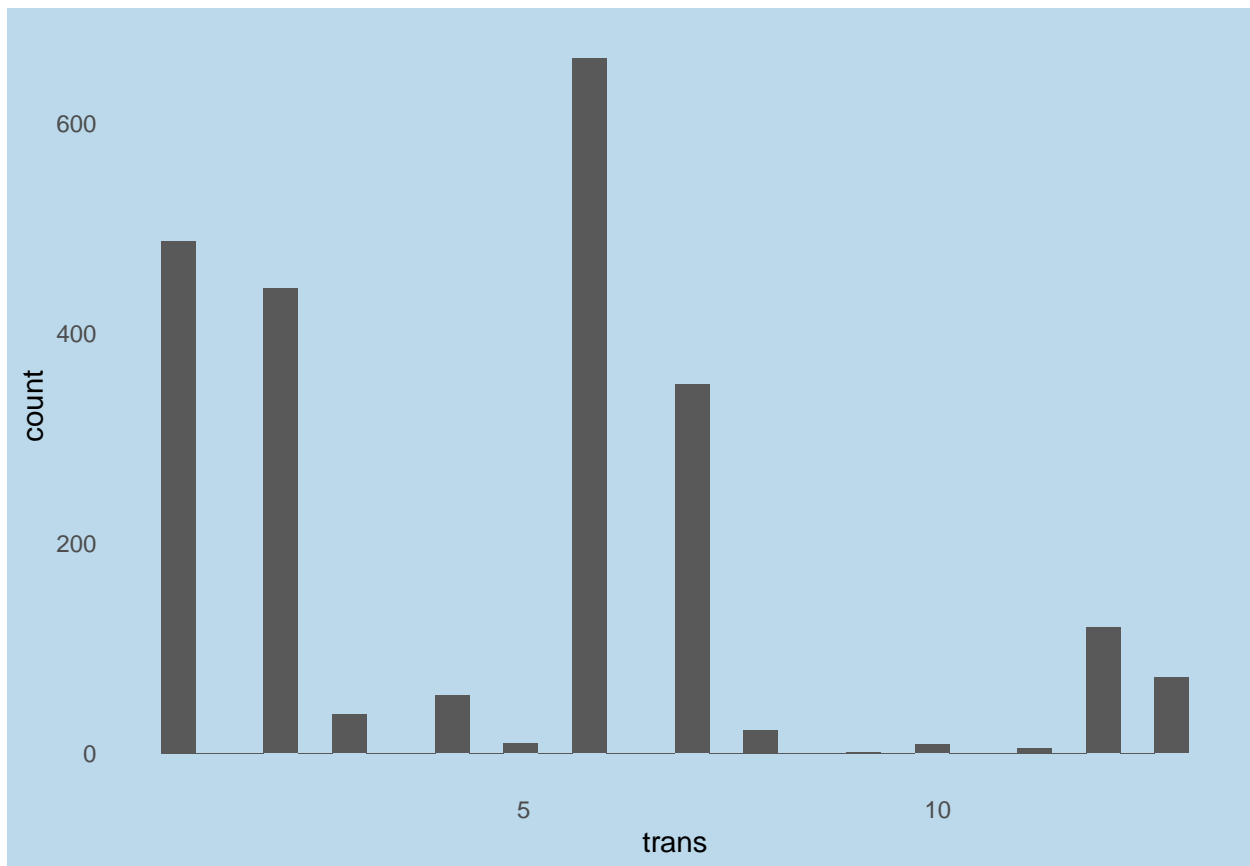
6.3) Which mode of transportation most frequently used [23]

Run distribution over population Run distribution by sub-demographics (a-k) Compare and find gaps (test unequal proportions)

```
wrangled %>% count(trans)
```

```
## # A tibble: 14 x 2
##      trans      n
##      <int+lbl> <int>
## 1 1 [drive alone] 488
## 2 2 [public bus] 443
## 3 3 [carpool] 37
## 4 4 [bike] 55
## 5 5 [scooter] 9
## 6 6 [subway] 662
## 7 7 [walk] 351
## 8 8 [commuter rail] 22
## 9 9 [vanpool] 1
## 10 10 [private bus, shuttle] 8
## 11 11 [ferry, commuter boat] 5
## 12 12 [taxi, ride hail, for-hire vehicle] 120
## 13 13 [other] 72
## 14 NA 42
```

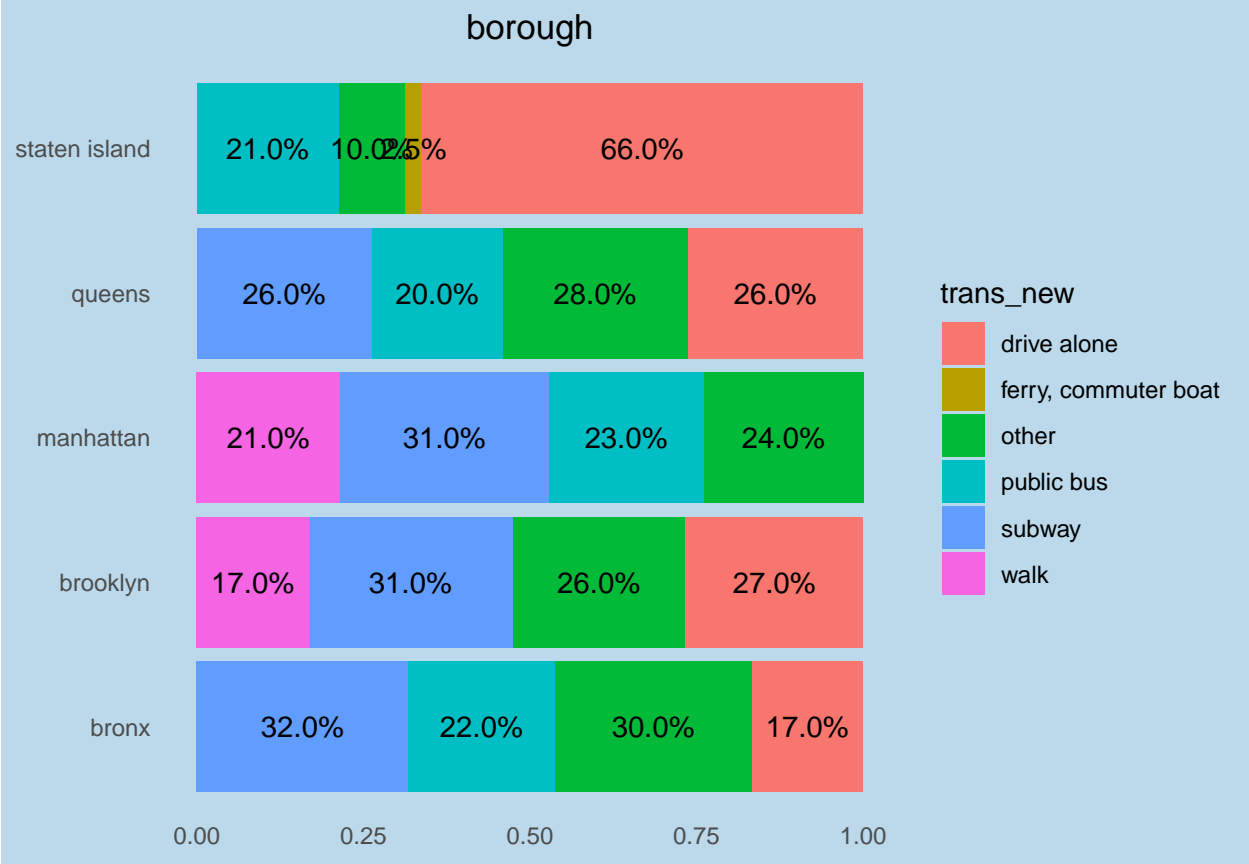
```
wrangled %>% ggplot(aes(x = trans)) + geom_histogram()
```



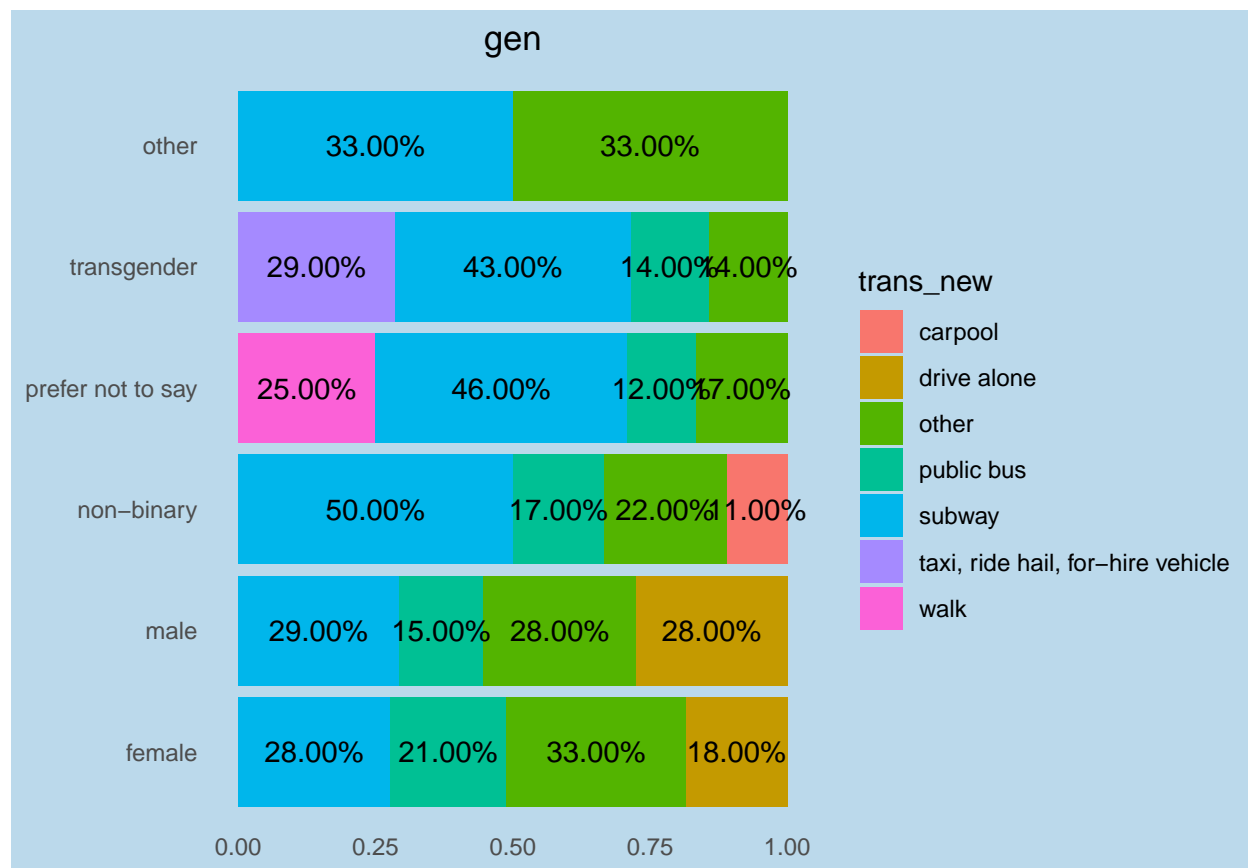
```
lapply(demographics, function(dm) {
  sym_dm <- sym(dm)
  wrangled %>%
    mutate(across(!!sym_dm, ~str_replace_all(labelled::to_factor(.),
                                              c("transgender.*" = "transgender",
                                                "indigenous.*" = "Indigenous American")))) %>%
    group_by(!!sym_dm) %>% count(!!sym_dm, trans) %>%
    arrange(dm, desc(n)) %>%
    mutate(trans_new = ifelse(row_number() < 4, to_character(trans), "other")) %>%
    group_by(!!sym_dm, trans_new) %>% summarize(n = sum(n)) %>%
    group_by(!!sym_dm) %>% mutate(denom = sum(n), prop = n/denom) %>%
    arrange(dm, prop) %>%
    mutate(label = ifelse(row_number() <= 3, scales::percent(prop), "")) %>%
    filter(denom > 1) %>% na.omit() %>%

    ggplot(aes(x = prop, y = reorder(!!sym_dm, prop), fill = trans_new)) +
    geom_col(position = "fill") +
    geom_text(aes(label = scales::percent(signif(prop, 2))), position = position_fill(0.5)) +
    ggtitle(dm) + xlab(NULL) + ylab(NULL)
})
```

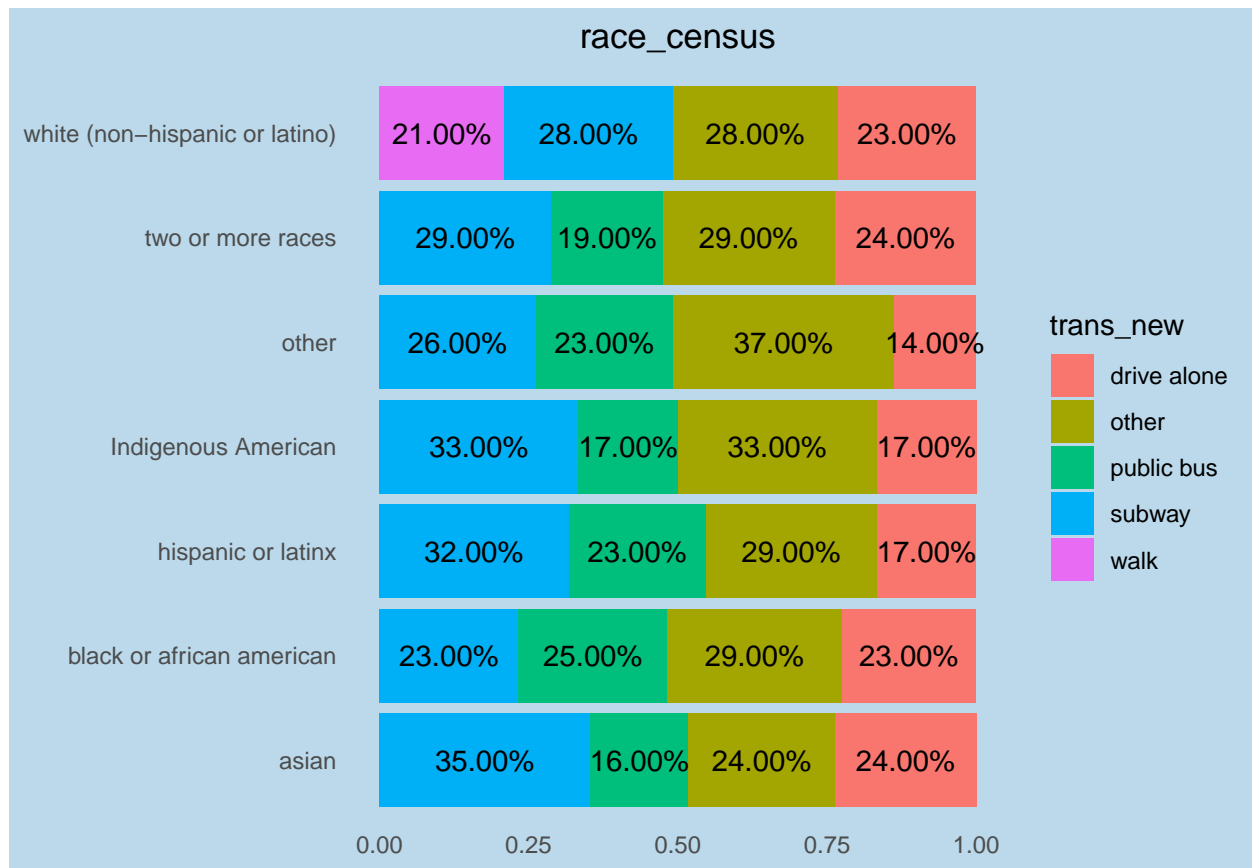
```
## $borough
```



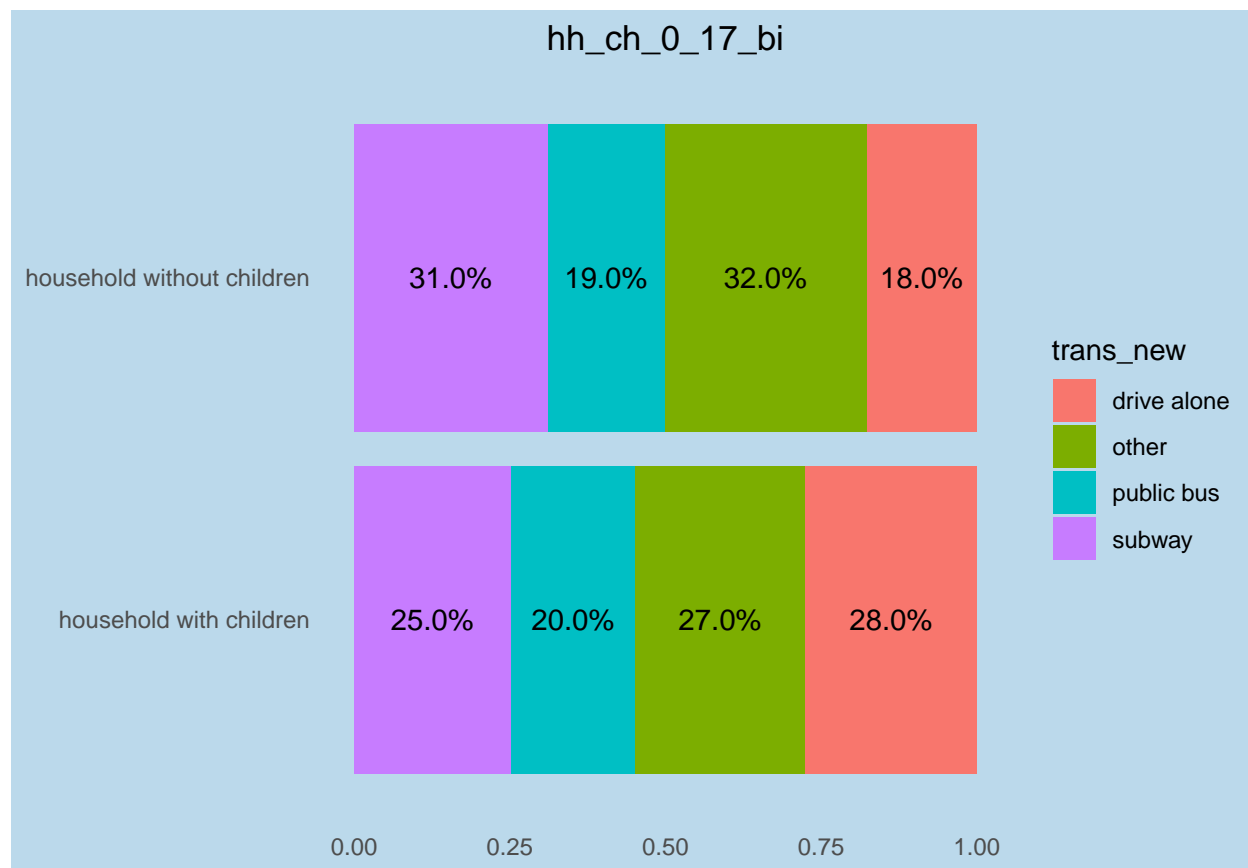
\$gen



\$race_census

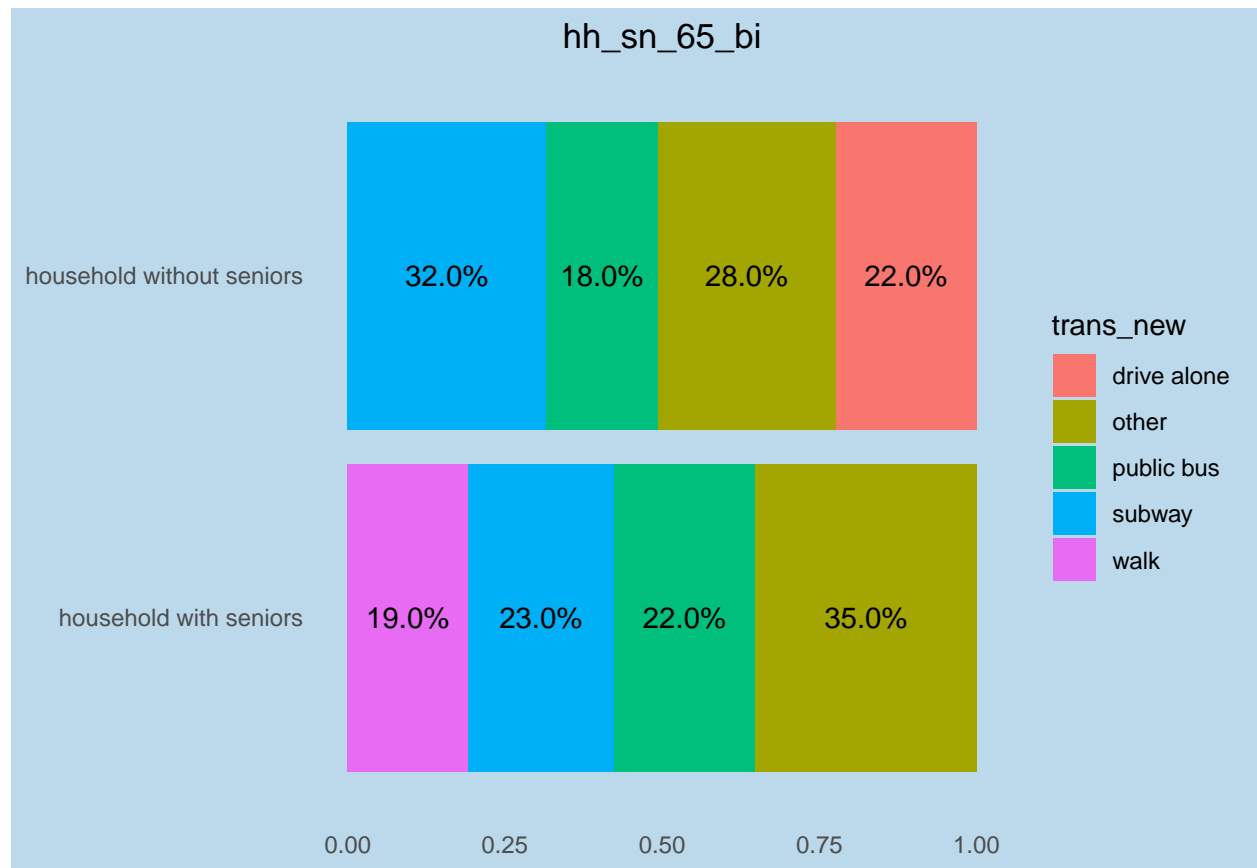


```
##
## $hh_ch_0_17_bi
```

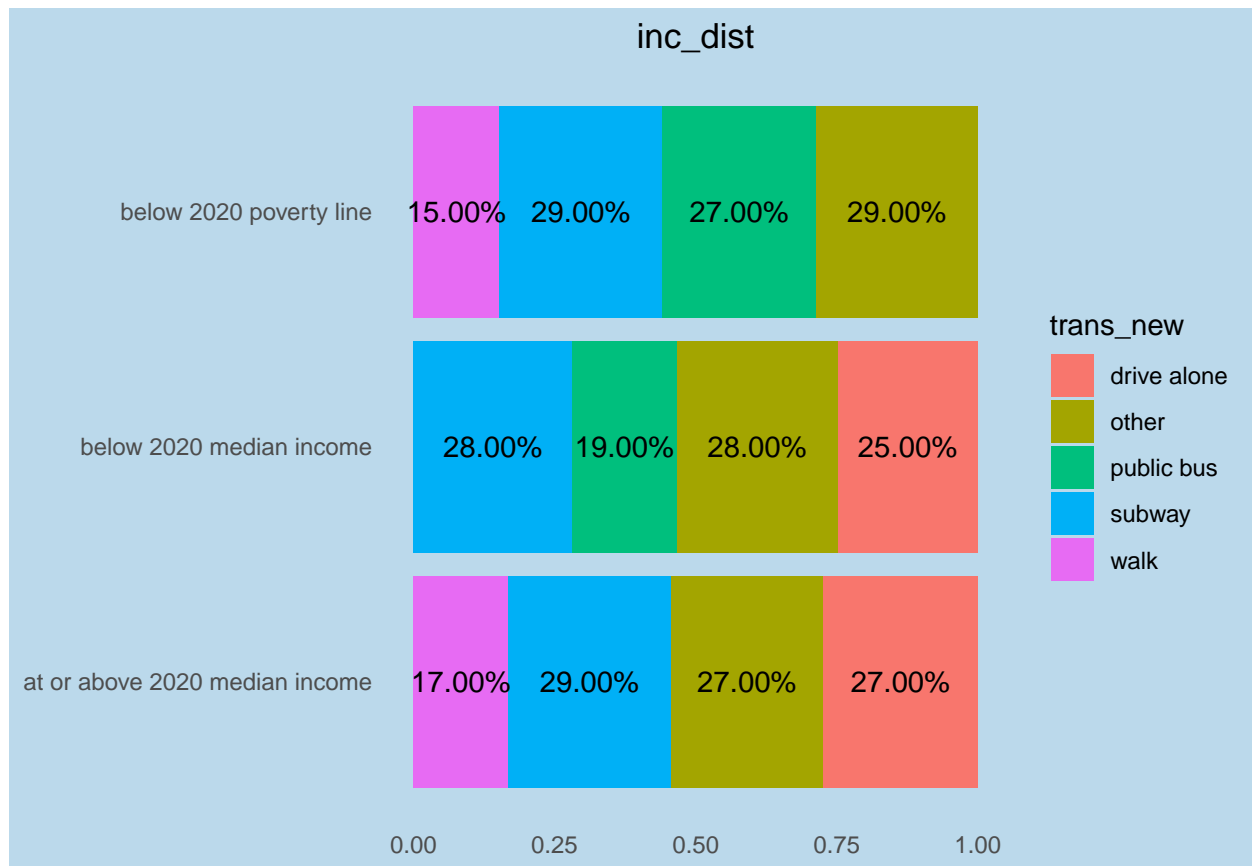


##

\$hh_sn_65_bi



```
##  
## $inc_dist
```



6.5) People who experienced difficulty accessing transportation in the past year [20]

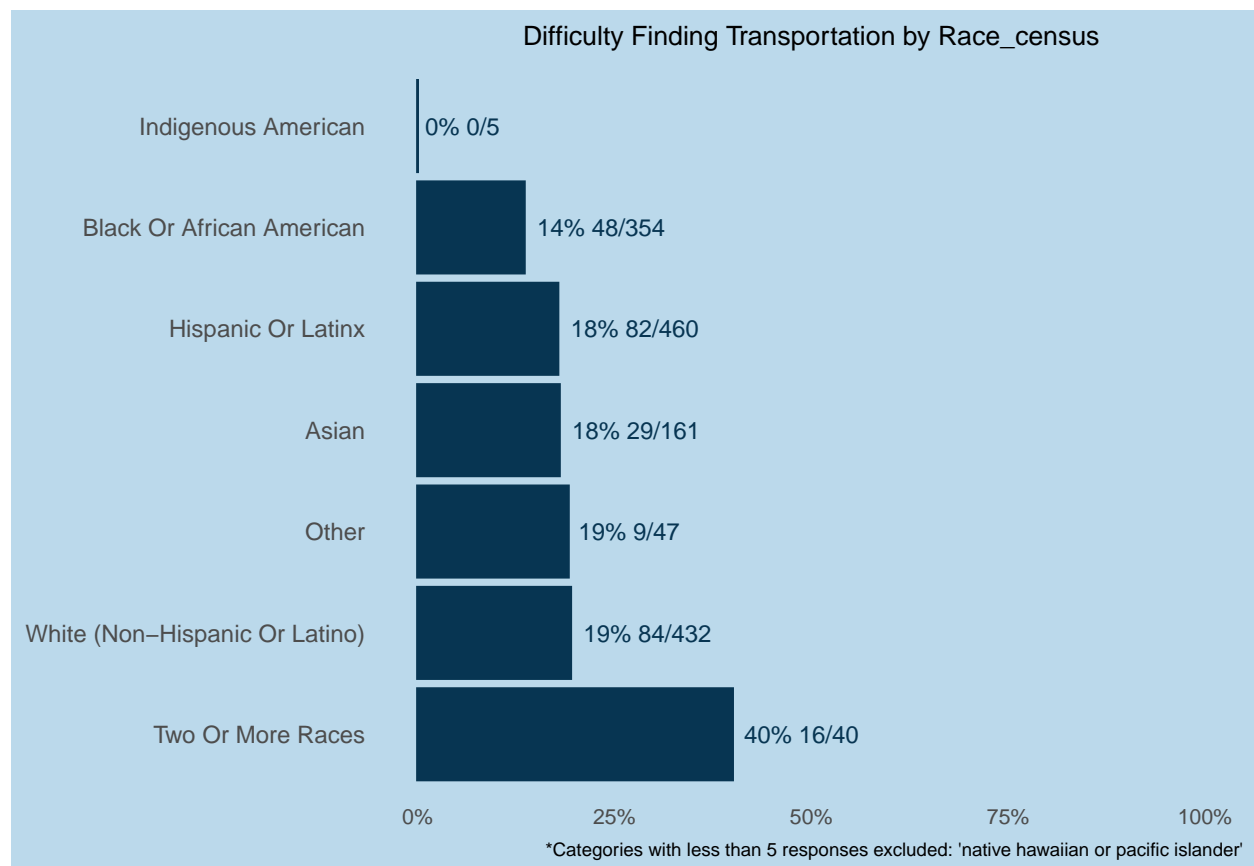
Run distribution over population Run distribution by sub-demographics (a-k) Compare and find gaps (test unequal proportions)

```
mean(wrangled$diff_trans, na.rm = TRUE)
```

```
## [1] 0.1808166
```

```
make_plots(wrangled, demographics, "diff_trans", title = "Difficulty finding transportation") #title ad
```

```
## $borough
## NULL
##
## $gen
## NULL
##
## $race_census
## $race_census$plot
```

```
##
## $race_census$p.values
## $race_census$p.values$diff_trans
##
## Indigenous American black or african american
## Indigenous American NA NA
## black or african american NA NA
## hispanic or latinx NA NA
## asian NA NA
## other NA NA
## white (non-hispanic or latino) NA NA
## two or more races NA 4.7e-05
##
## hispanic or latinx asian other
## Indigenous American NA NA NA
## black or african american NA NA NA
## hispanic or latinx NA NA NA
## asian NA NA NA
## other NA NA NA
## white (non-hispanic or latino) NA NA NA
## two or more races 0.0015 0.0055 NA
##
## white (non-hispanic or latino) two or more races
## Indigenous American NA NA
## black or african american NA 4.7e-05
## hispanic or latinx NA 1.5e-03
## asian NA 5.5e-03
## other NA NA
## white (non-hispanic or latino) NA 4.5e-03
```

```
## two or more races                                0.0045                NA
##
##
##
## $hh_ch_0_17_bi
## NULL
##
## $hh_sn_65_bi
## NULL
##
## $inc_dist
## NULL
```

6.6) People who are renting public housing or with public assistance were more likely to experience difficulty finding housing in the past six year

Find respondents who are renters of public housing or rent with public assistance [19] Find proportion of subset who indicated difficulty finding housing in the past year [20] Find proportion not in subset who indicated difficulty finding housing in the past year and compare (test unequal proportions)

```
#mean(wrangled$res_cat == 1)

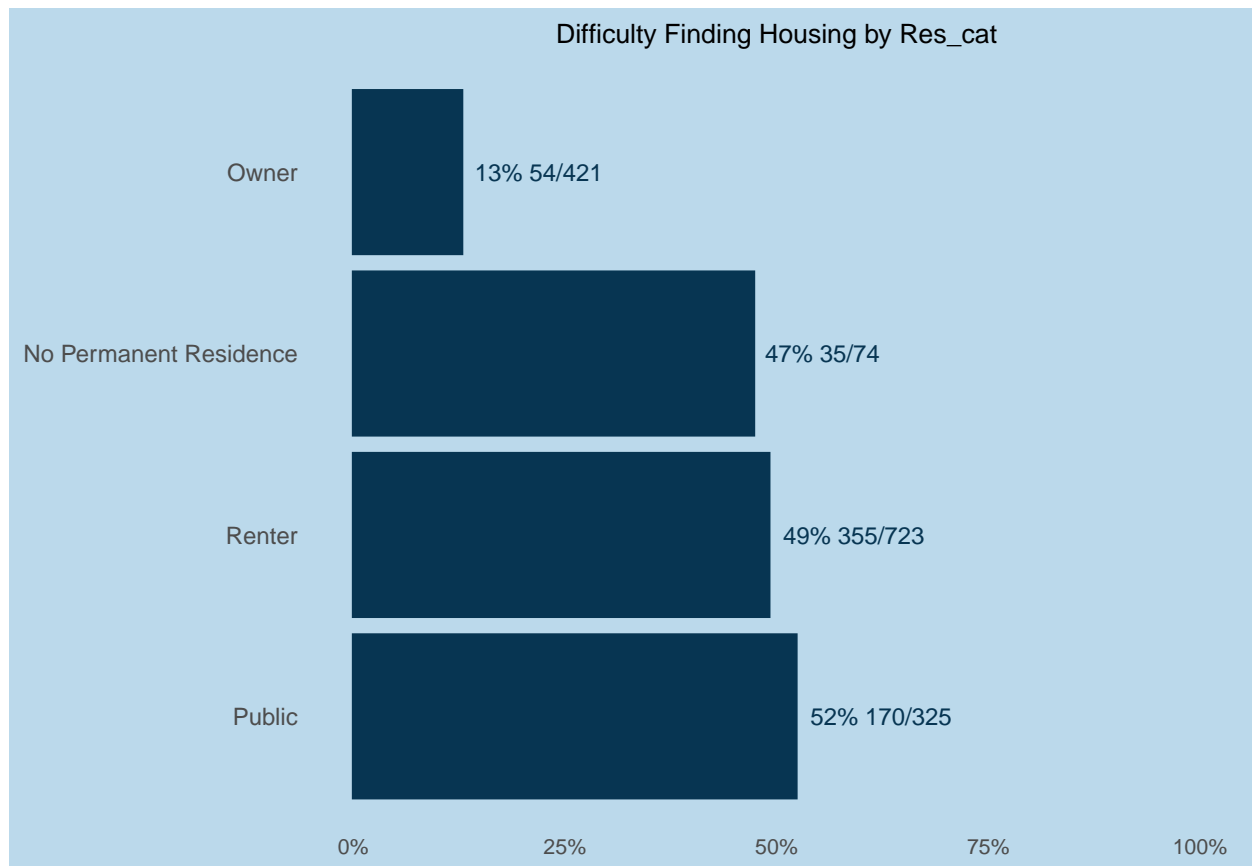
res_cat_1 <- filter(wrangled, res_cat == 1)

(prop_insecure <- data.frame(table(res_cat_1$house_insec)) %>% rename("Having difficulty finding housing"))

##    Having difficulty finding housing? Freq  percent
## 1                                0  155 0.4769231
## 2                                1  170 0.5230769

make_plots(wrangled, "res_cat", "house_insec", title = "Difficulty finding housing")

## $res_cat
## $res_cat$plot
```



```
##
## $res_cat$p.values
## $res_cat$p.values$house_insec
##           owner no permanent residence renter public
## owner              NA              3.5e-12 1.1e-34 4.9e-31
## no permanent residence 3.5e-12              NA      NA      NA
## renter              1.1e-34              NA      NA      NA
## public              4.9e-31              NA      NA      NA
```

6.7) Households below median income were more likely to have difficulty with transportation during the pandemic

Find three groups of population who are below median income in 2021 [13] Find the proportion of each subset of people who had difficulty with transportation [20] Compare and contrast the three groups on the basis of who faced the highest number of transportation issues and test unequal proportions

```
mean(wrangled$inc_be_med_before, na.rm = TRUE)
```

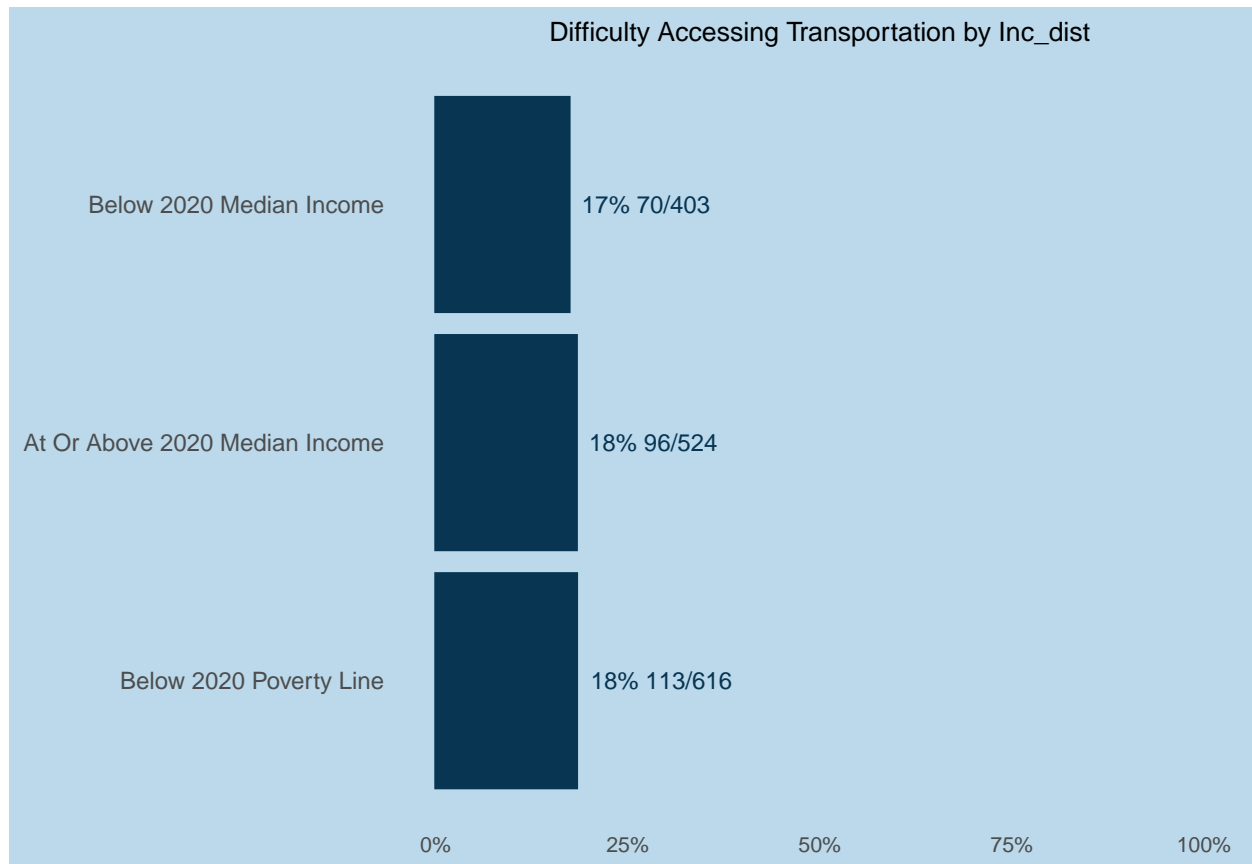
```
## [1] 0.5976043
```

```
wrangled %>% count(inc_dist, diff_trans) %>% mutate_if(is.labelled, to_character)
```

```
## # A tibble: 9 x 3
##   inc_dist                diff_trans                n
##   <chr>                  <chr>                <int>
## 1 below 2020 poverty line not 'difficulty accessing or using trans~ 503
## 2 below 2020 poverty line difficulty accessing or using transporta~ 113
## 3 below 2020 poverty line <NA>                176
## 4 below 2020 median income not 'difficulty accessing or using trans~ 333
## 5 below 2020 median income difficulty accessing or using transporta~ 70
## 6 below 2020 median income <NA>                152
## 7 at or above 2020 median income not 'difficulty accessing or using trans~ 428
## 8 at or above 2020 median income difficulty accessing or using transporta~ 96
## 9 at or above 2020 median income <NA>                444
```

```
make_plots(wrangled, "inc_dist", "diff_trans", show = "yes", title = "Difficulty Accessing Transportation")
```

```
## $inc_dist
## $inc_dist$plot
```



```
##
## $inc_dist$p.values
## $inc_dist$p.values$diff_trans
##          below 2020 median income
## below 2020 median income          NA
## at or above 2020 median income    NA
```

```
## below 2020 poverty line NA
## at or above 2020 median income
## below 2020 median income NA
## at or above 2020 median income NA
## below 2020 poverty line NA
## below 2020 poverty line
## below 2020 median income NA
## at or above 2020 median income NA
## below 2020 poverty line NA
```

6.8) People with limited or no internet access are more likely to use friends and family as resources

Find respondents who have limited internet access or no internet access [22] Find subset of respondents who are most likely to turn to friends/family for support [33] it's not "most likely" but did or did not list them Find proportion not in subset and compare (test unequal proportions)

```
mean(wrangled$lr_fam, na.rm = TRUE)
```

```
## [1] 0.8074866
```

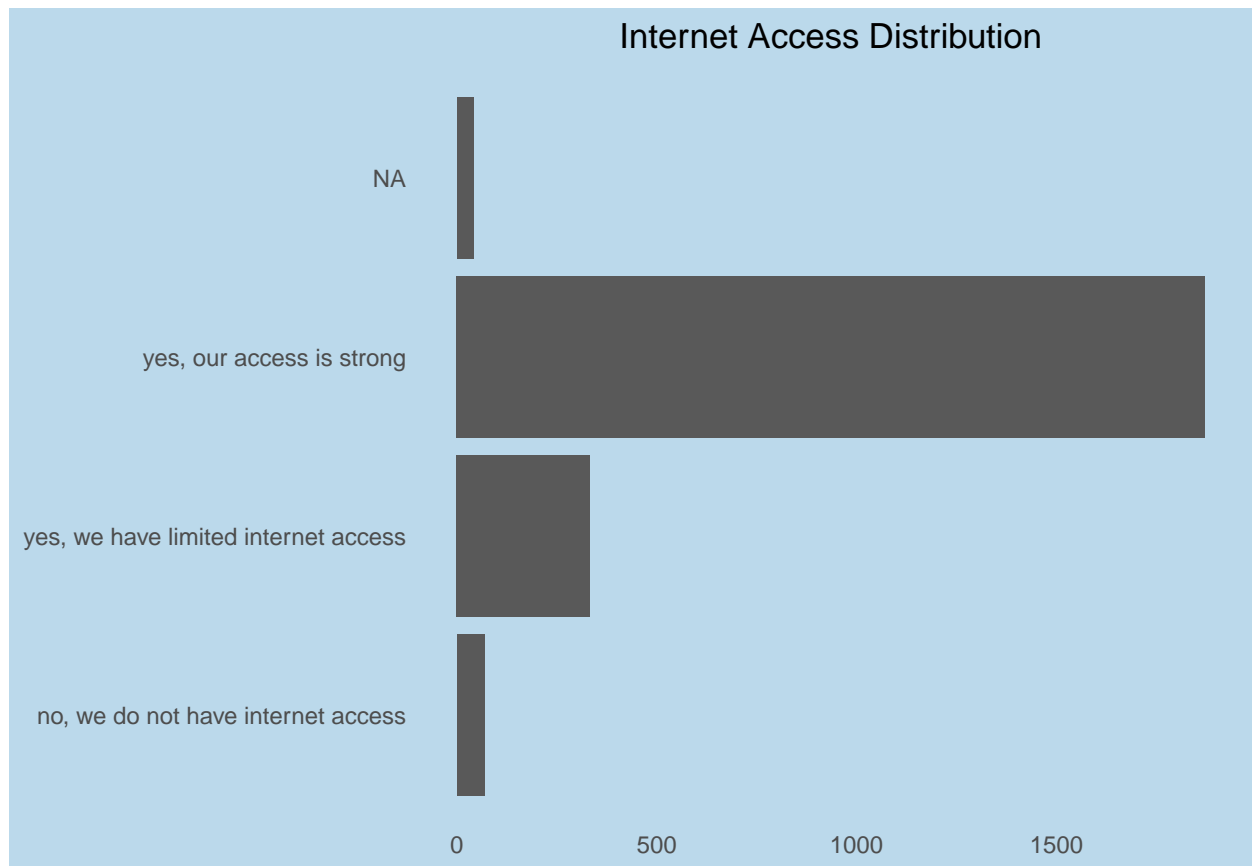
```
mean(wrangled$internet_acc, na.rm = TRUE)
```

```
## [1] 0.9520518
```

```
mean(wrangled$internet_lim, na.rm = TRUE)
```

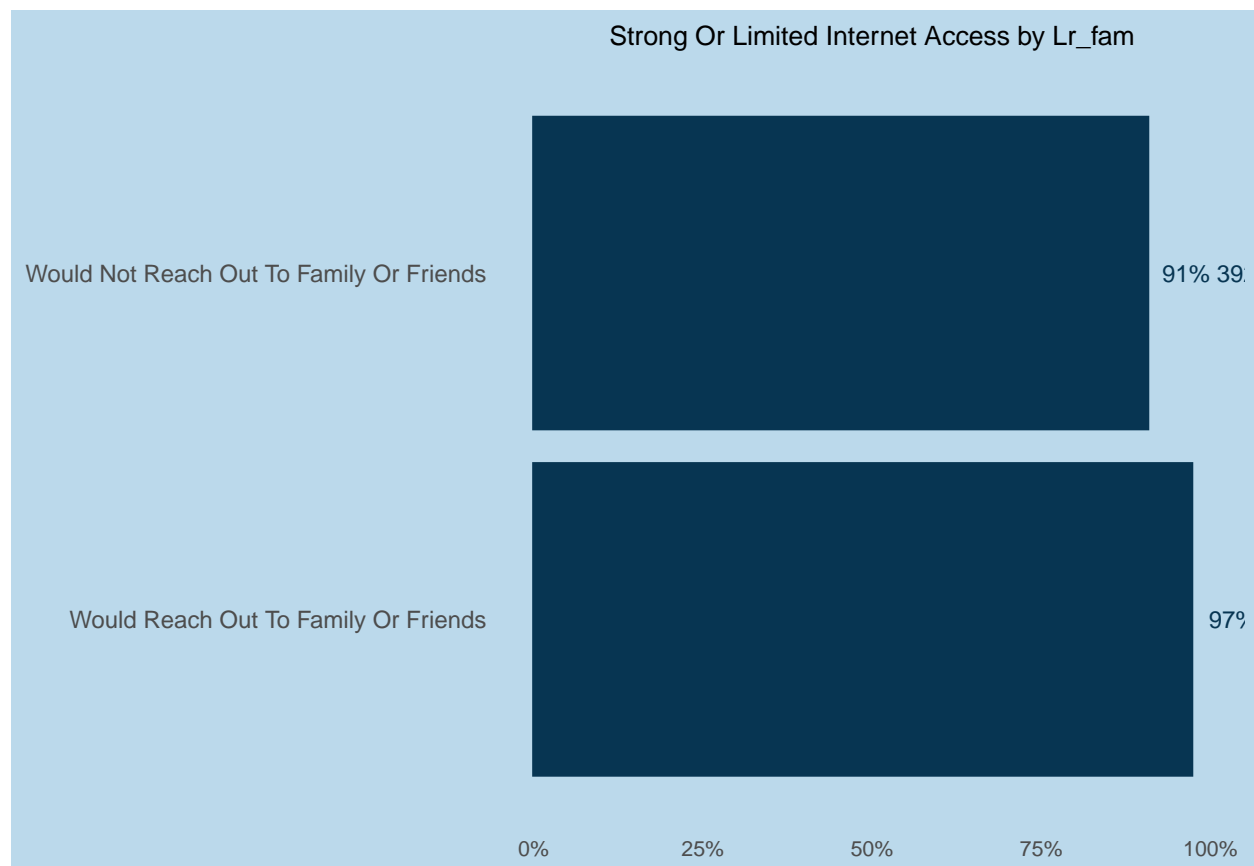
```
## [1] 0.1768588
```

```
count(wrangled, internet) %>% mutate_if(is.labelled, to_character) %>%
  ggplot(aes(x = n, y = reorder(internet, n))) + geom_col() + xlab(NULL) + ylab(NULL) + ggtitle("Intern
```



```
make_plots(wrangled, "lr_fam", "internet_acc", title = "Strong or Limited Internet Access")
```

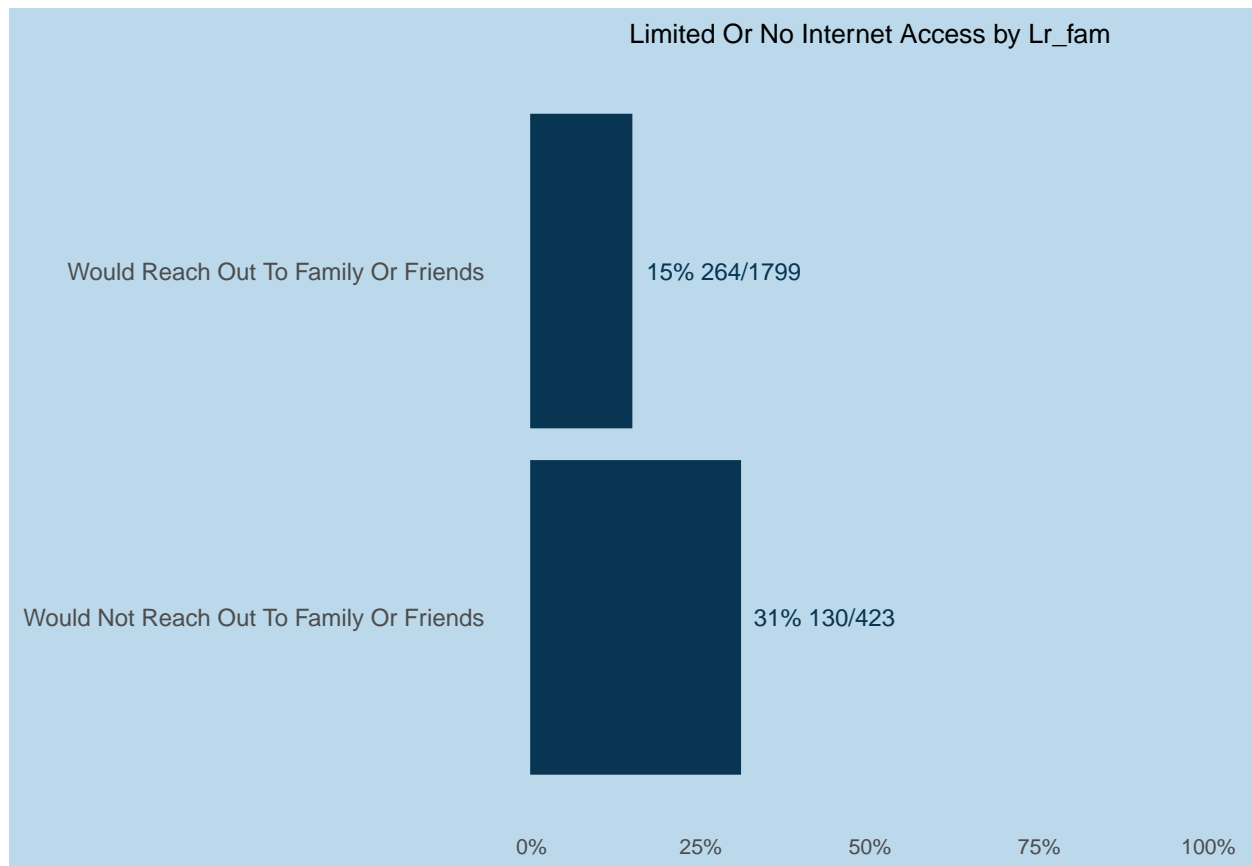
```
## $lr_fam  
## $lr_fam$plot
```



```
##
## $lr_fam$p.values
## $lr_fam$p.values$internet_acc
##
## would not reach out to family or friends
## would not reach out to family or friends NA
## would reach out to family or friends 1.4e-09
##
## would reach out to family or friends
## would not reach out to family or friends 1.4e-09
## would reach out to family or friends NA
```

```
make_plots(wrangled, "lr_fam", "internet_lim", title = "Limited or No Internet Access")
```

```
## $lr_fam
## $lr_fam$plot
```



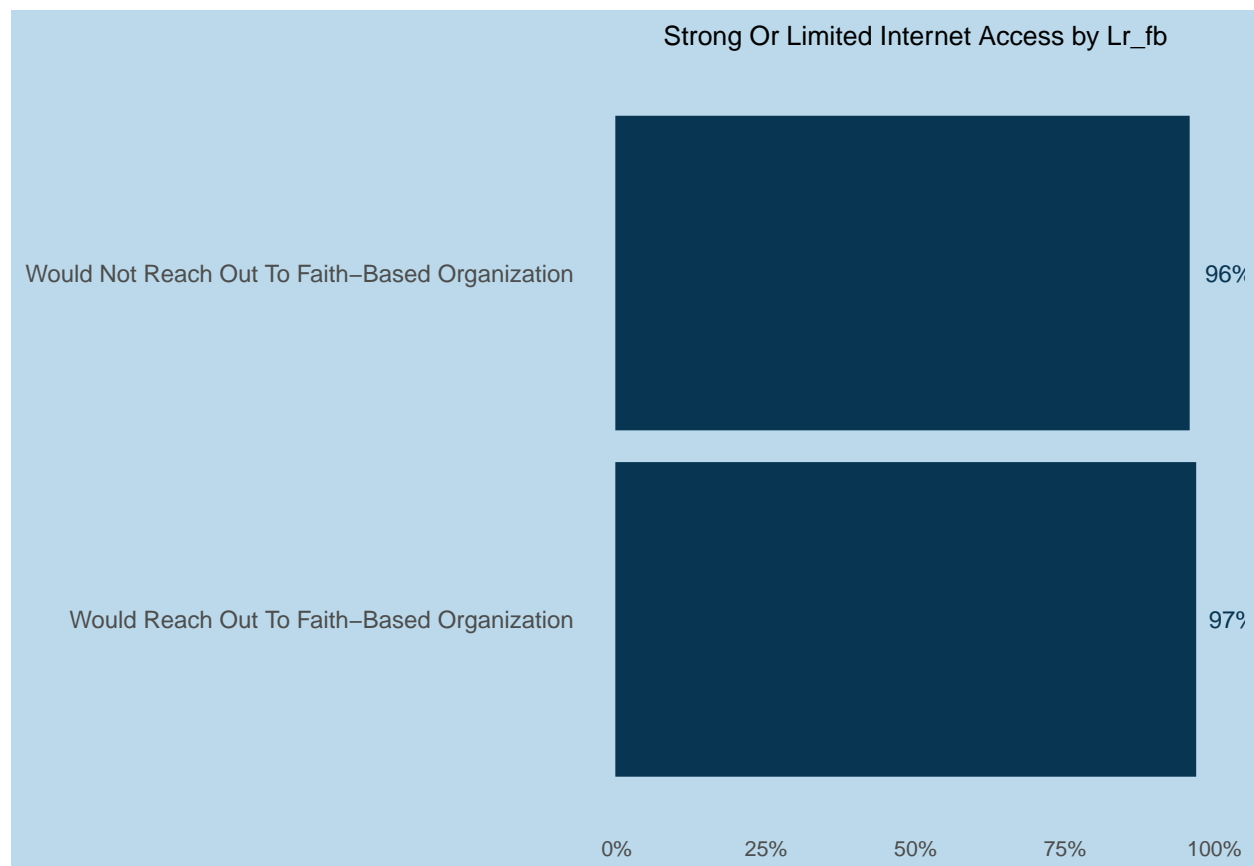
```
##
## $lr_fam$p.values
## $lr_fam$p.values$internet_lim
##
## would reach out to family or friends
## would reach out to family or friends NA
## would not reach out to family or friends 1.3e-14
##
## would not reach out to family or friends
## would reach out to family or friends 1.3e-14
## would not reach out to family or friends NA
```

6.9) People with limited or no internet access are more likely to use faith-based resources

Find respondents who have limited internet access or no internet access [22] Find subset of respondents who are most likely to use faith-based resources [33] Find proportion not in subset and compare (test unequal proportions)

```
make_plots(wrangled, "lr_fb", "internet_acc", title = "Strong or Limited Internet Access", show = TRUE)
```

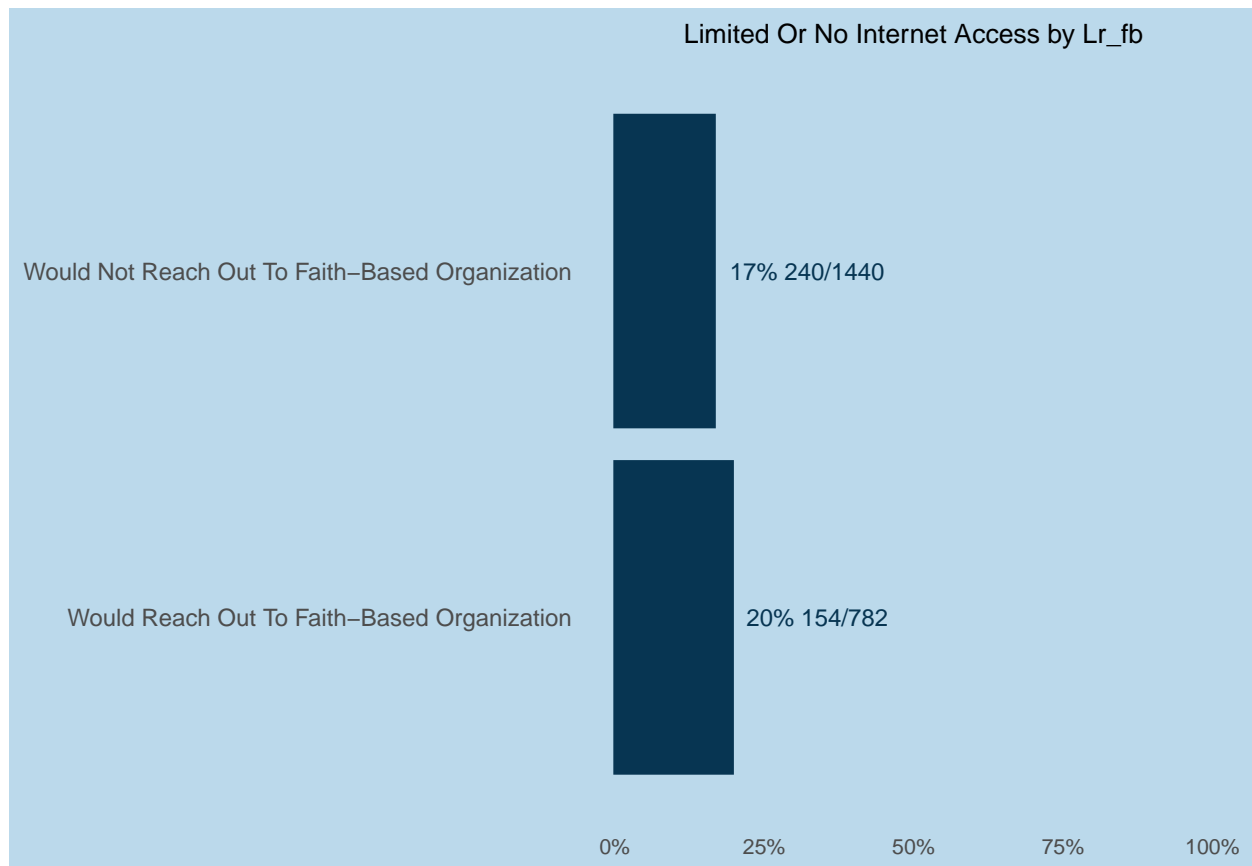
```
## $lr_fb
## $lr_fb$plot
```

```
##
## $lr_fb$p.values
## $lr_fb$p.values$internet_acc
##                                would not reach out to faith-based organization
## would not reach out to faith-based organization                                NA
## would reach out to faith-based organization                                    NA
##                                would reach out to faith-based organization
## would not reach out to faith-based organization                                NA
## would reach out to faith-based organization                                    NA

make_plots(wrangled, "lr_fb", "internet_lim", title = "Limited or No Internet Access", show = TRUE) #sh

## $lr_fb
## $lr_fb$plot
```



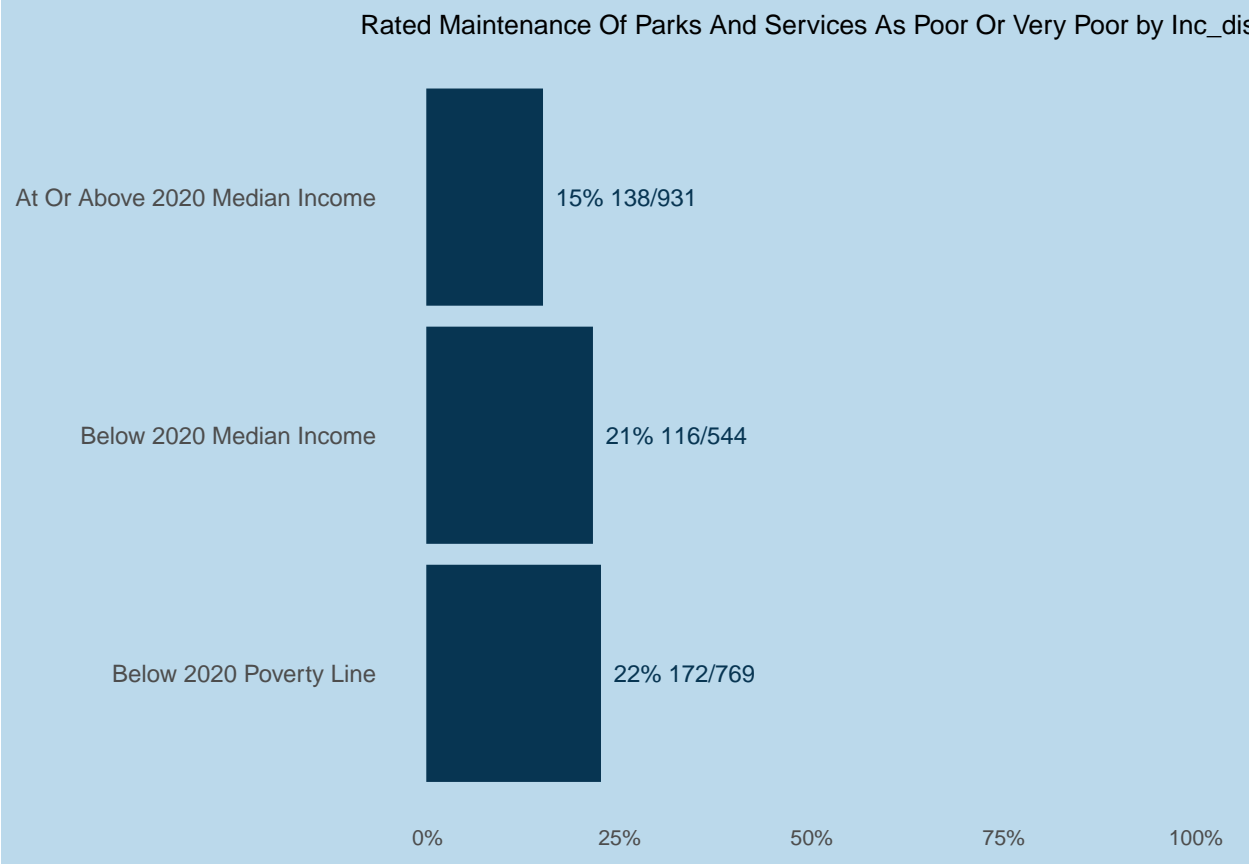
```
##
## $lr_fb$p.values
## $lr_fb$p.values$internet_lim
##
## would not reach out to faith-based organization NA
## would not reach out to faith-based organization NA
## would reach out to faith-based organization NA
## would reach out to faith-based organization NA
```

6.10) Households below median income are more likely to rate maintenance of parks and services as poor [13, 32]

Find proportion of respondents who are below median income or at median income [13] Find subset of respondents who rated maintenance of parks and services as poor [32] Find proportion not in subset and compare (test unequal proportions)

```
make_plots(wrangled, "inc_dist", "rate_neigh_rec_bad", title = "Rated Maintenance of Parks and Services")
```

```
## $inc_dist
## $inc_dist$plot
```



```
##
## $inc_dist$p.values
## $inc_dist$p.values$rate_neigh_rec_bad
##           at or above 2020 median income
## at or above 2020 median income           NA
## below 2020 median income           1.8e-03
## below 2020 poverty line           7.9e-05
##           below 2020 median income below 2020 poverty line
## at or above 2020 median income           0.0018           7.9e-05
## below 2020 median income           NA           NA
## below 2020 poverty line           NA           NA
```