poa_access

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6.1)People who had difficulty accessing resources [20]

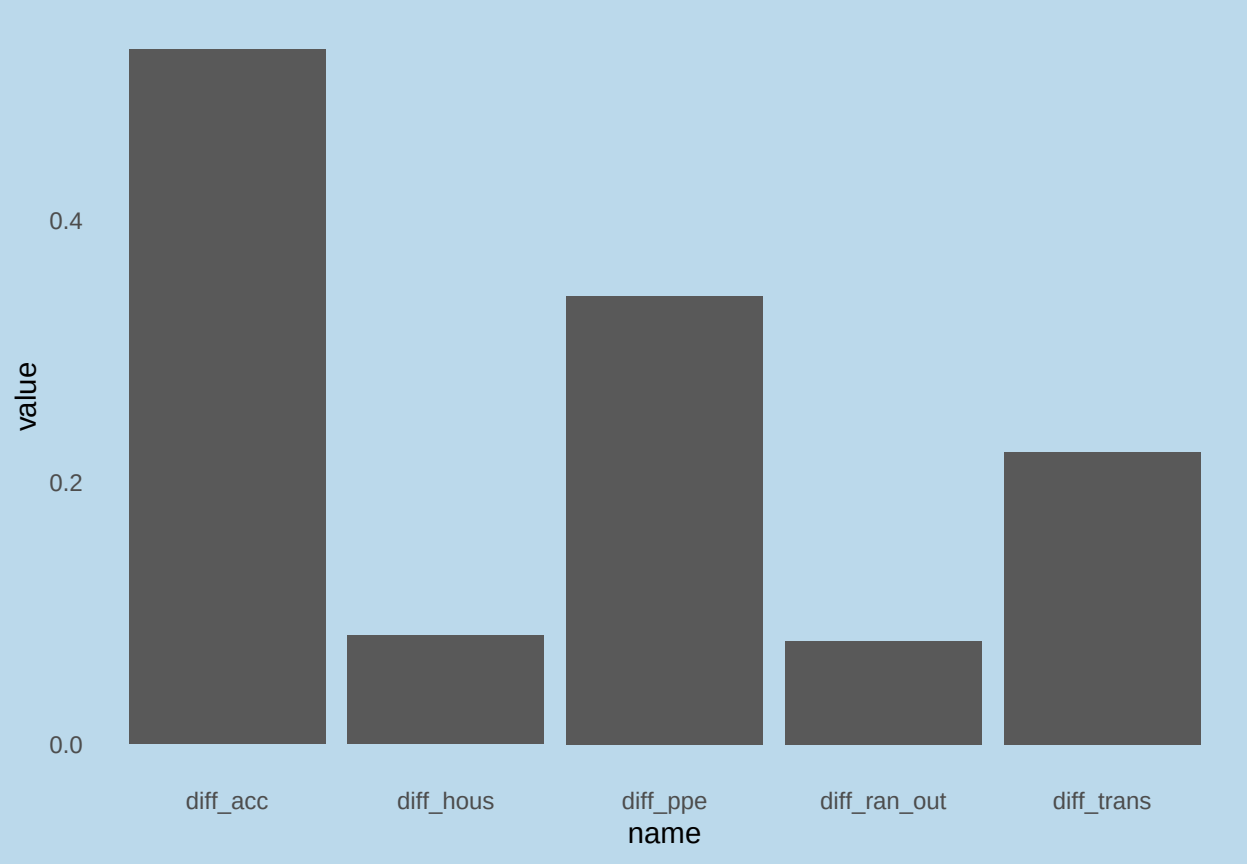
Run binary distribution over population Indicators: food, PPE, transportation,housing Yes = 1+ indicators No = 0 indicators Run binary distribution by sub-demographics Compare and find gaps (test unequal proportions) Run categorical distribution over population Run categorical distribution over sub-demographics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

- by borough, difficulty accessing cleaning supplies surpasses the other variables
- by decade, overpowered by accessing cleaning supplies and housing

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

```
## [1] 0.5307487
```

```
wrangled %>% pivot_longer(cols = c("diff_ran_out", "diff_ppe", "diff_acc", "diff_trans", "diff_hous")) %
  select(name, value) %>% group_by(name) %>% summarize(value = mean(value, na.rm = TRUE)) %>%
  ggplot(aes(x = name, y = value)) + geom_col()
```

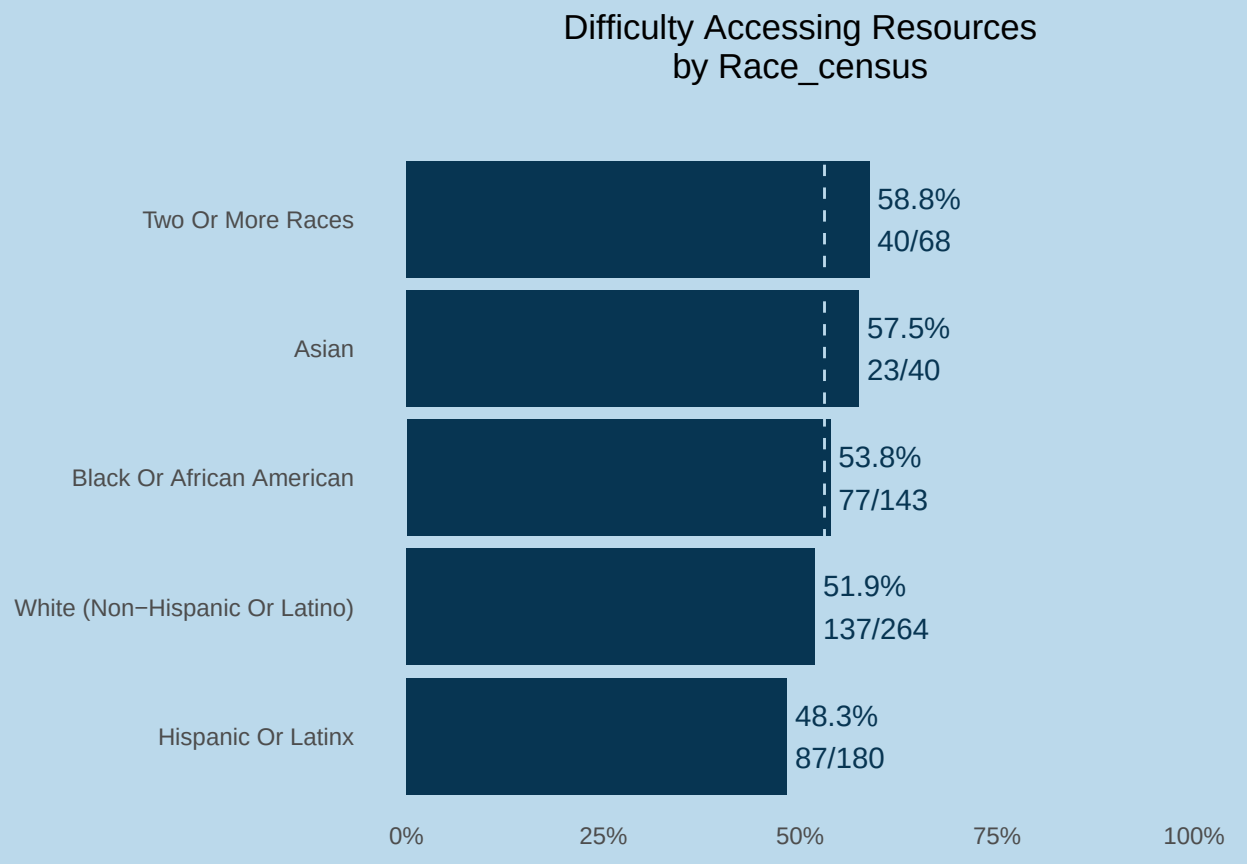



```
demographics
```

```
##             borough              decade                 gen         race_census
##           "borough"            "decade"               "gen"       "race_census"
##             not_eng                 mar       sch_level_cat       hh_ch_0_17_bi
##           "not_eng"               "mar"     "sch_level_cat"     "hh_ch_0_17_bi"
##            hh_65_bi            inc_dist   emp_status_before    emp_status_after
##          "hh_65_bi"          "inc_dist" "emp_status_before"  "emp_status_after"
##             res_cat
##           "res_cat"
```

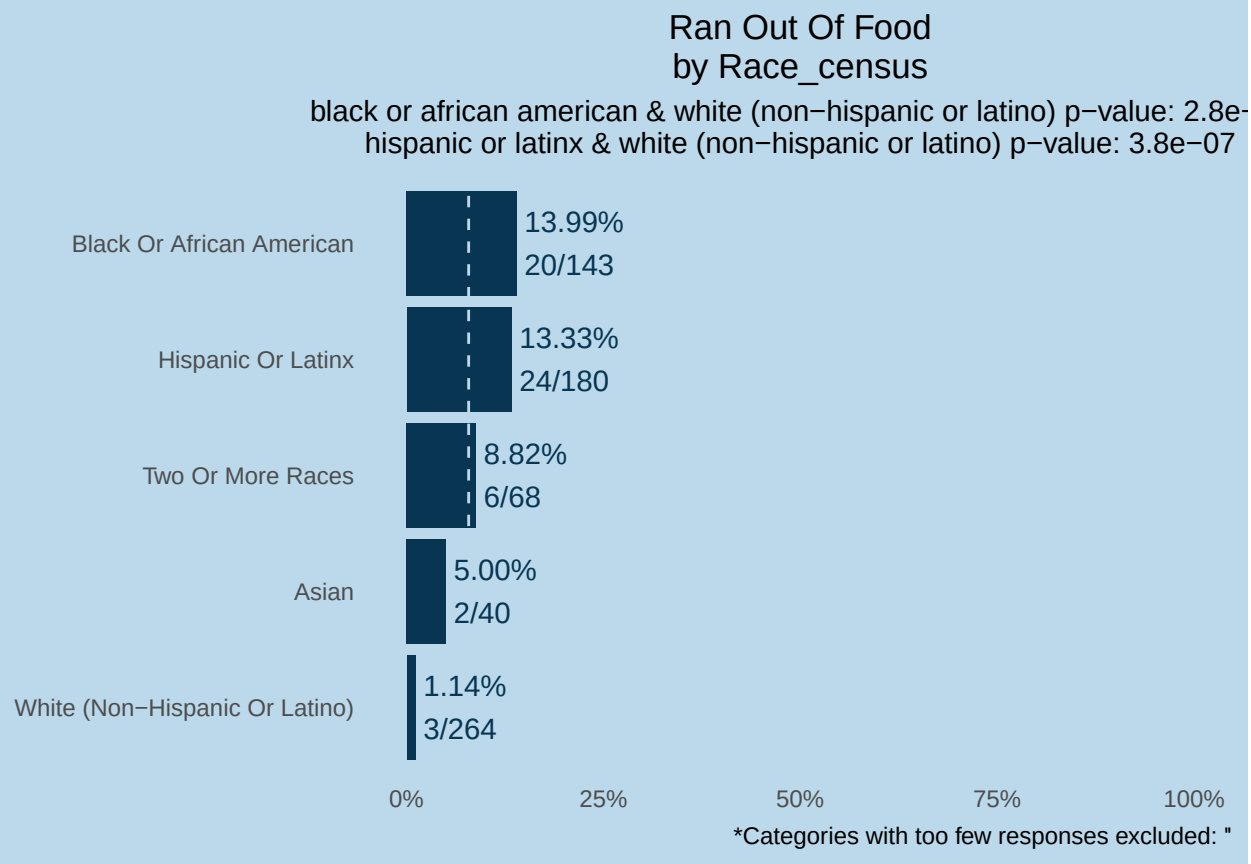
```
# make a venn diagram

make_plots(wrangled, "race_census", "diff_acc", title = "Difficulty Accessing Resources", show = "true")
```

```
## $race_census
```



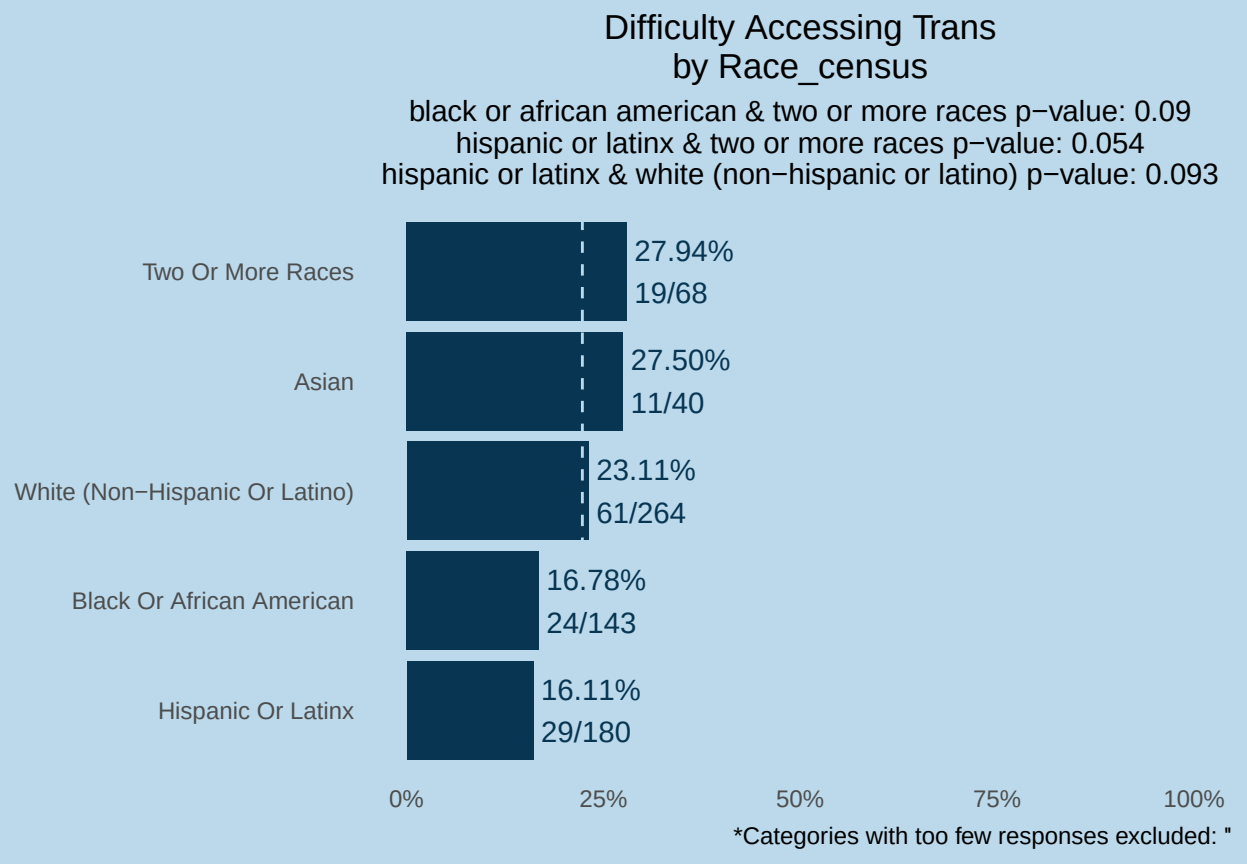

```
make_plots(wrangled, "race_census", "diff_ran_out", title = "Ran out of food", show = "true")
```

```
## $race_census
```



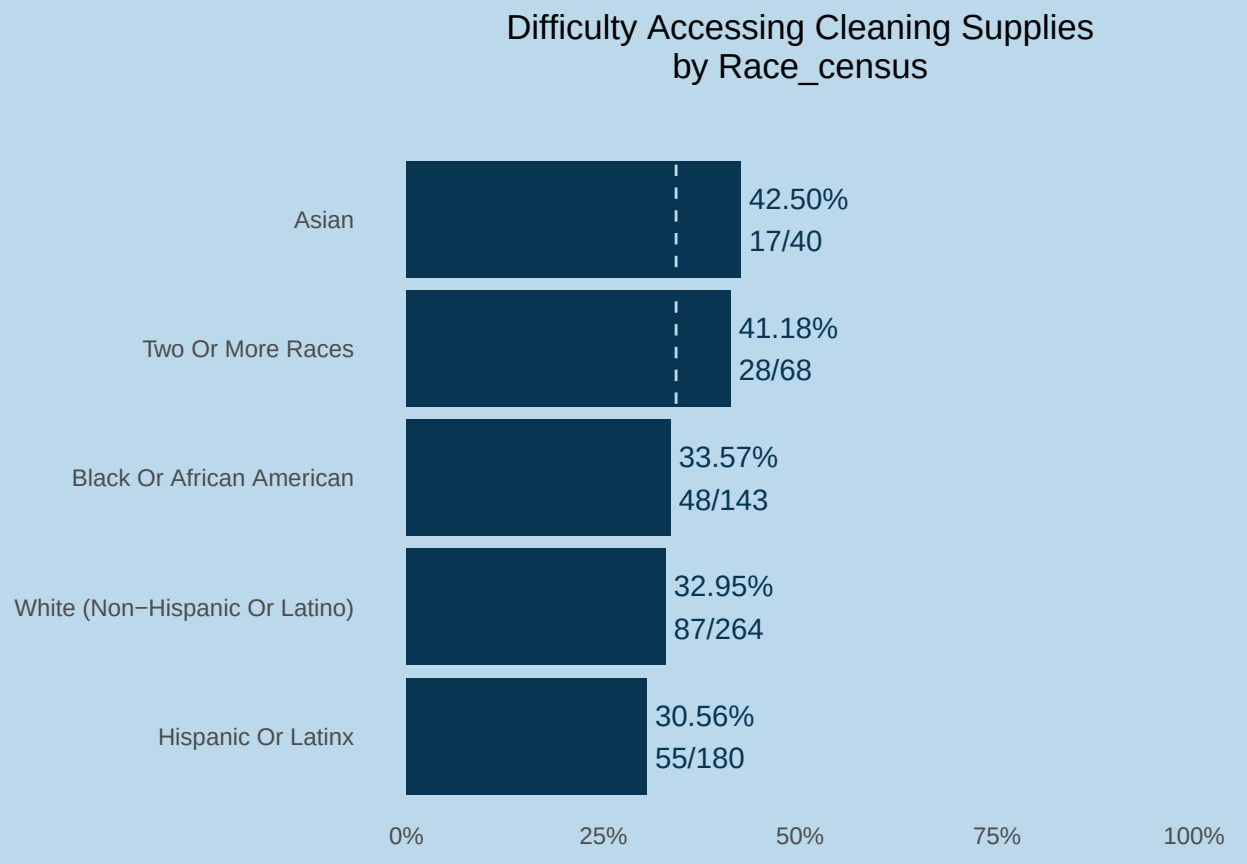

```
make_plots(wrangled, "race_census", "diff_trans", title = "Difficulty accessing trans", show = "true")
```

```
## $race_census
```



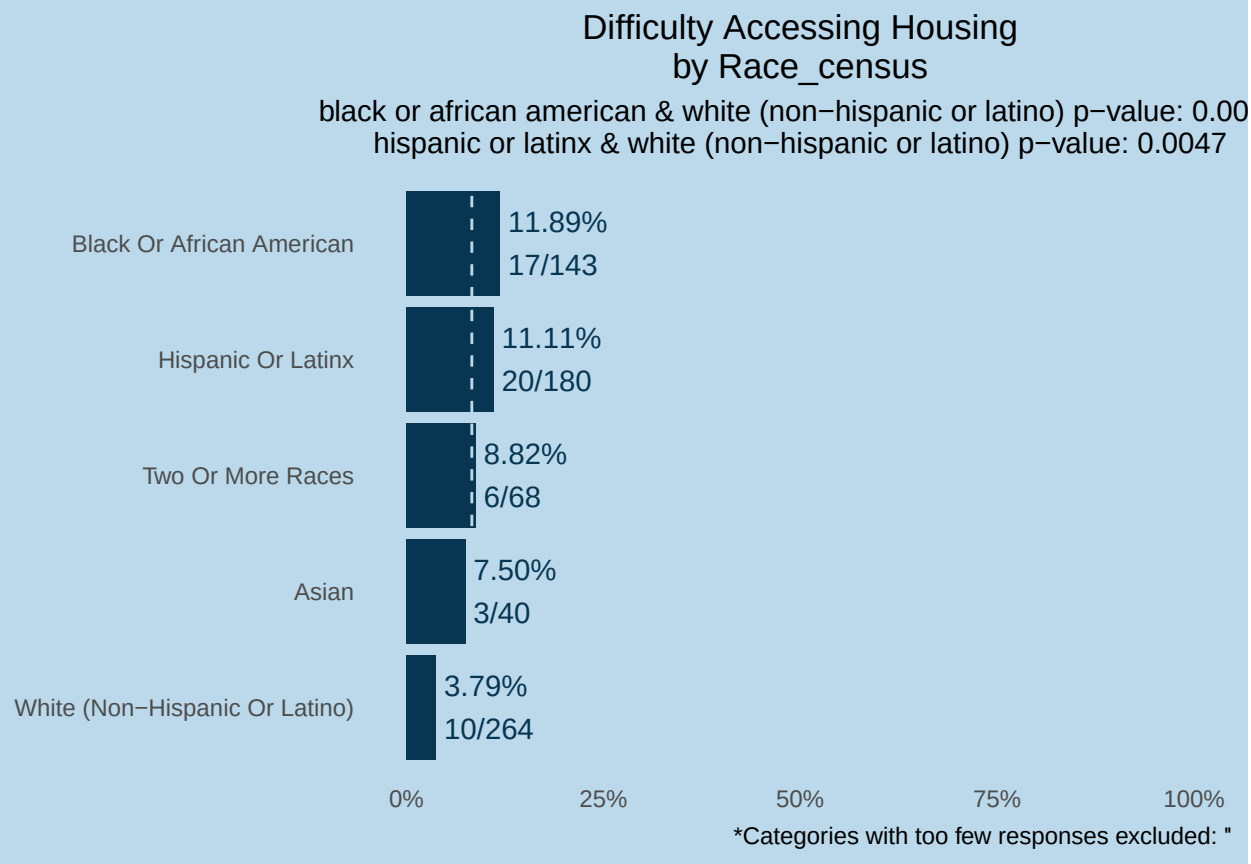

```
make_plots(wrangled, "race_census", "diff_ppe", title = "Difficulty accessing cleaning supplies", show =
```

```
## $race_census
```




```
make_plots(wrangled, "race_census", "diff_hous", title = "Difficulty accessing housing", show = "true")
```

```
## $race_census
```



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] 0.2121849
```

```
# lots of respondents just marked off not sure
wrangled %>% filter(str_detect(lr_cc, "not sure")) %>% count(lr_cc)
```

```
## # A tibble: 10 x 2
##    lr_cc                                                                n
##    <chr>                                                            <int>
##  1 community non-profits;friends/family;not sure                        1
##  2 community non-profits;government;friends/family;not sure             1
##  3 community non-profits;government;not sure                            1
##  4 community non-profits;not sure                                       3
##  5 faith-based;community non-profits;government;corporate/business;friend~     3
##  6 faith-based;community non-profits;not sure                           1
##  7 faith-based;not sure                                                 2
```

```
##  8 friends/family;not sure                                                  7
##  9 government;not sure                                                      3
## 10 not sure                                                               453
```

```
wrangled %>% filter(if_all(starts_with("lr") & is.character, ~.=="not sure")) %>%
  select(starts_with("lr")) %>% nrow() # people who just marked off not sure for everything
```

```
## Warning: Predicate functions must be wrapped in `where()`.
##
##   # Bad
##   data %>% select(is.character)
##
##   # Good
##   data %>% select(where(is.character))
##
## i Please update your code.
## This message is displayed once per session.
```

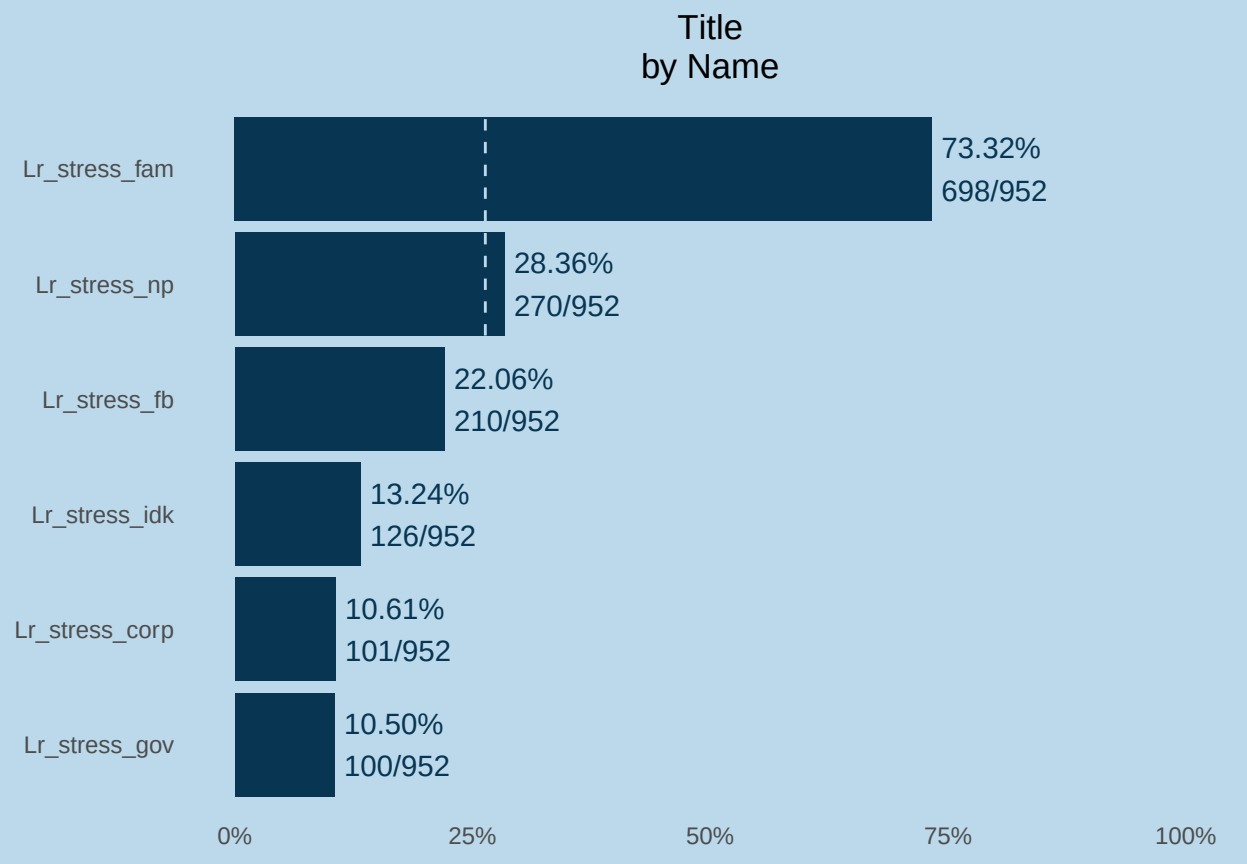
```
## [1] 25
```

```
resource_qs <- c("lr_stress_", "lr_cc_", "lr_trans_", "lr_food_", "lr_wtr_", "lr_hc_", "lr_ec_", "lr_hc
setNames(resource_qs, resource_qs)
```

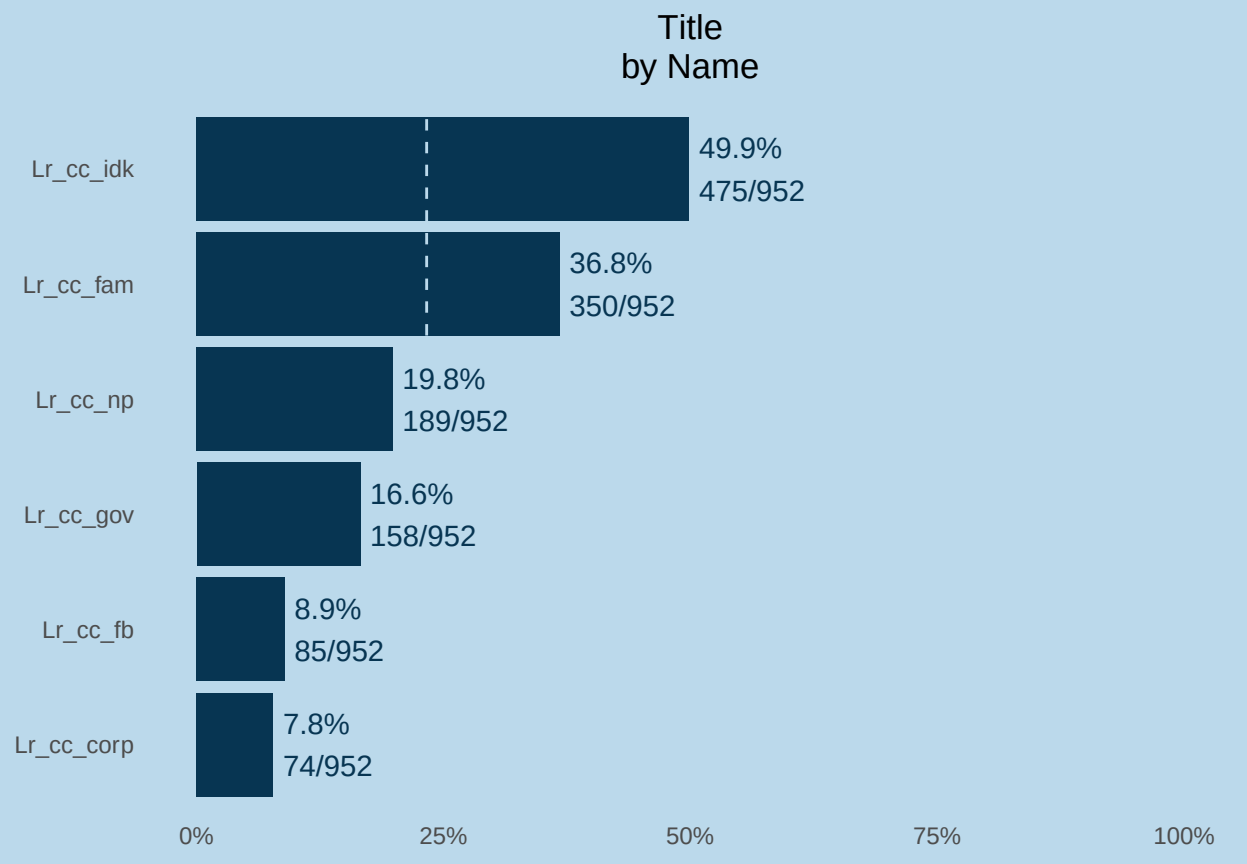
```
##   lr_stress_       lr_cc_    lr_trans_     lr_food_      lr_wtr_       lr_hc_
## "lr_stress_"     "lr_cc_"  "lr_trans_"   "lr_food_"    "lr_wtr_"     "lr_hc_"
##       lr_ec_       lr_hc_
##     "lr_ec_"     "lr_hc_"
```

```
lapply(resource_qs, function(q) {

  df <- wrangled %>% pivot_longer(cols = starts_with(q))

  make_plots(df, by_vars = "name", hyp_var = "value")[["name"]] +
    labs(subtitle = NULL)
})
```

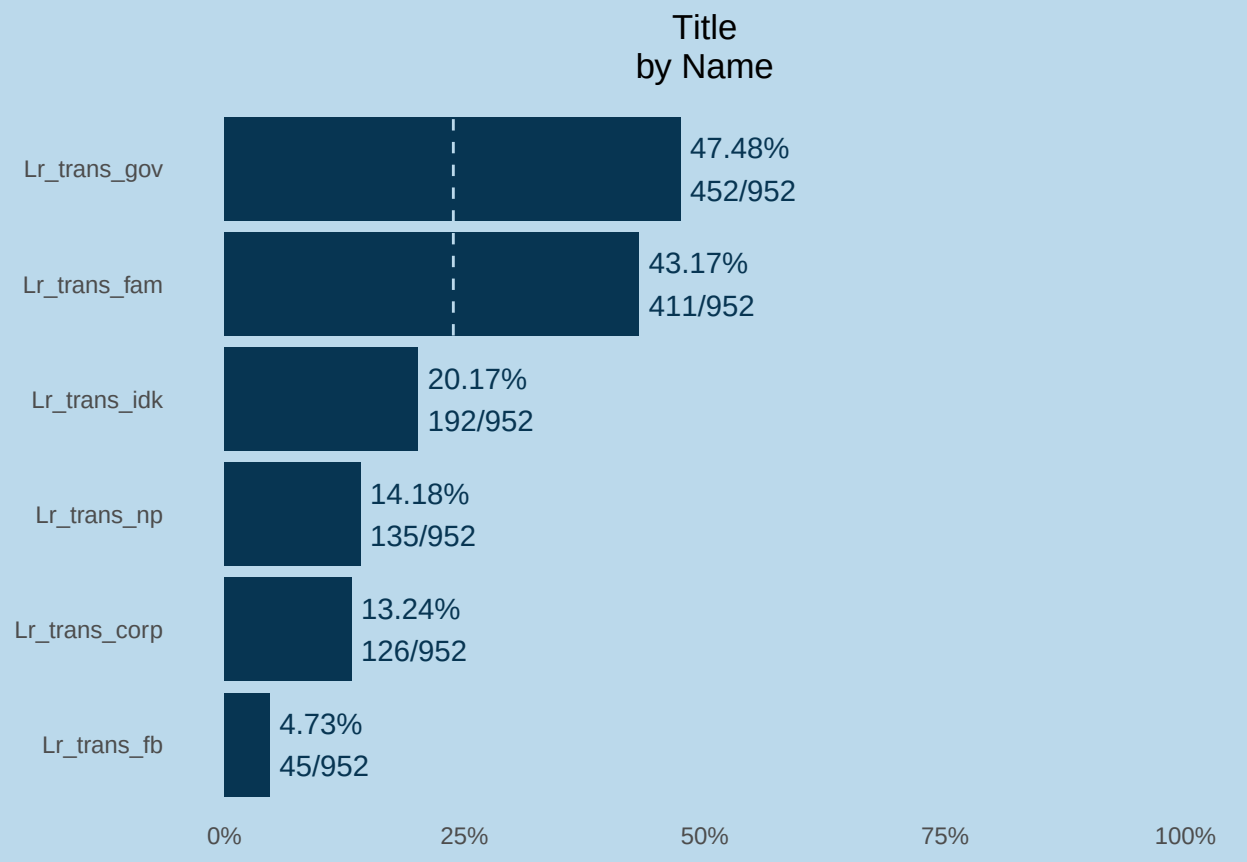
```
## [[1]]
```


Title
by Name
Lr_stress_fam
73.32%
698/952
Lr_stress_np
28.36%
270/952
Lr_stress_fb
22.06%
210/952
Lr_stress_idk
13.24%
126/952
Lr_stress_corp
10.61%
101/952
Lr_stress_gov
10.50%
100/952
0%
25%
50%
75%
100%

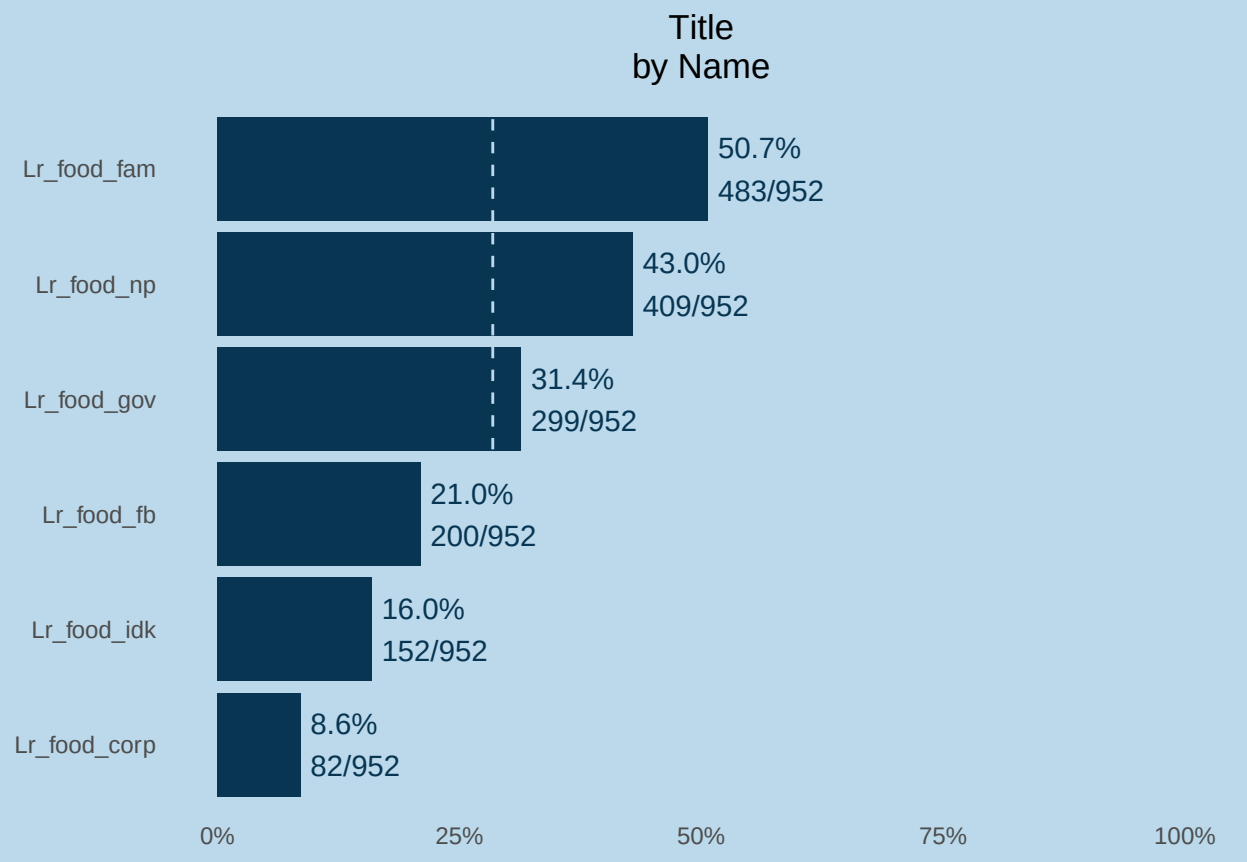
```
##
## [[2]]
```


Title
by Name
Lr_cc_idk
49.9%
475/952
Lr_cc_fam
36.8%
350/952
Lr_cc_np
19.8%
189/952
Lr_cc_gov
16.6%
158/952
Lr_cc_fb
8.9%
85/952
Lr_cc_corp
7.8%
74/952
0%
25%
50%
75%
100%

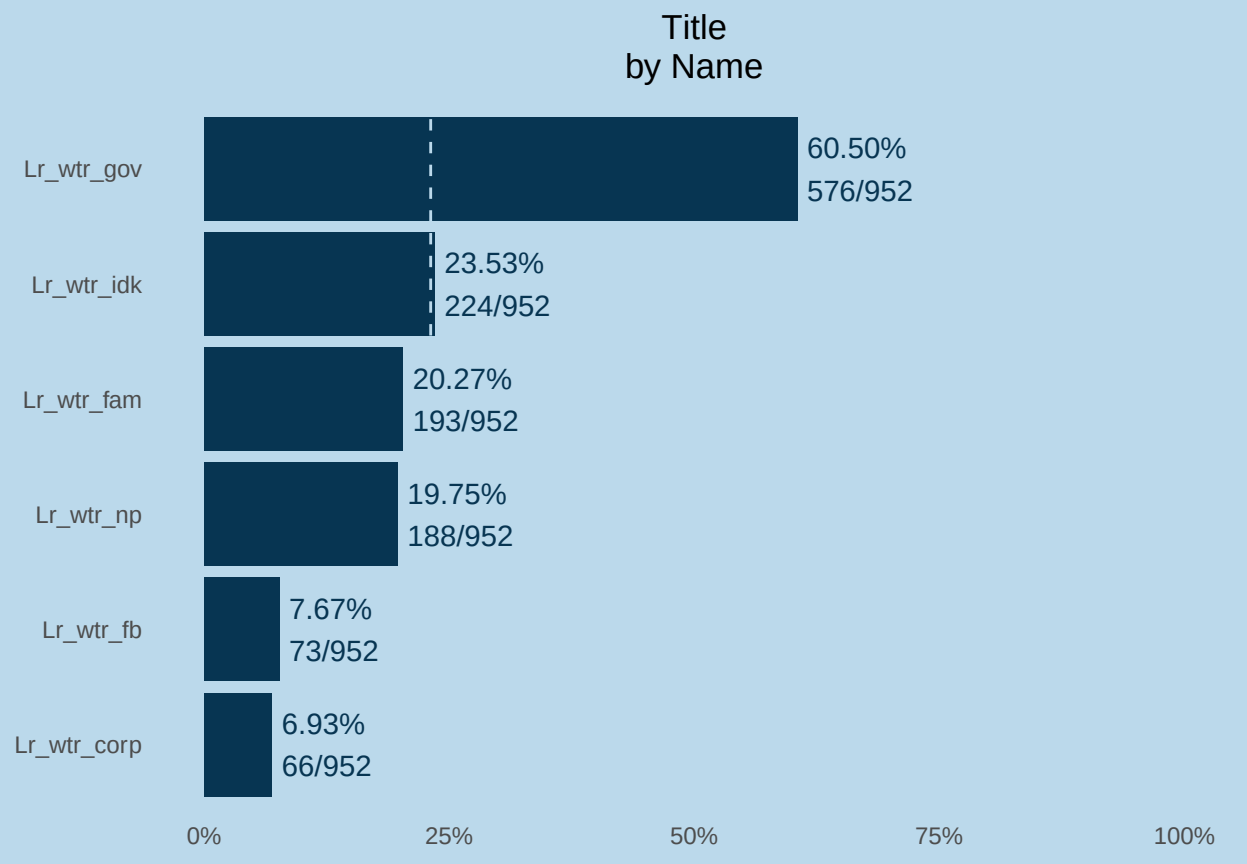
```
##
## [[3]]
```


Title
by Name
Lr_trans_gov
47.48%
452/952
Lr_trans_fam
43.17%
411/952
Lr_trans_idk
20.17%
192/952
Lr_trans_np
14.18%
135/952
Lr_trans_corp
13.24%
126/952
Lr_trans_fb
4.73%
45/952
0%
25%
50%
75%
100%

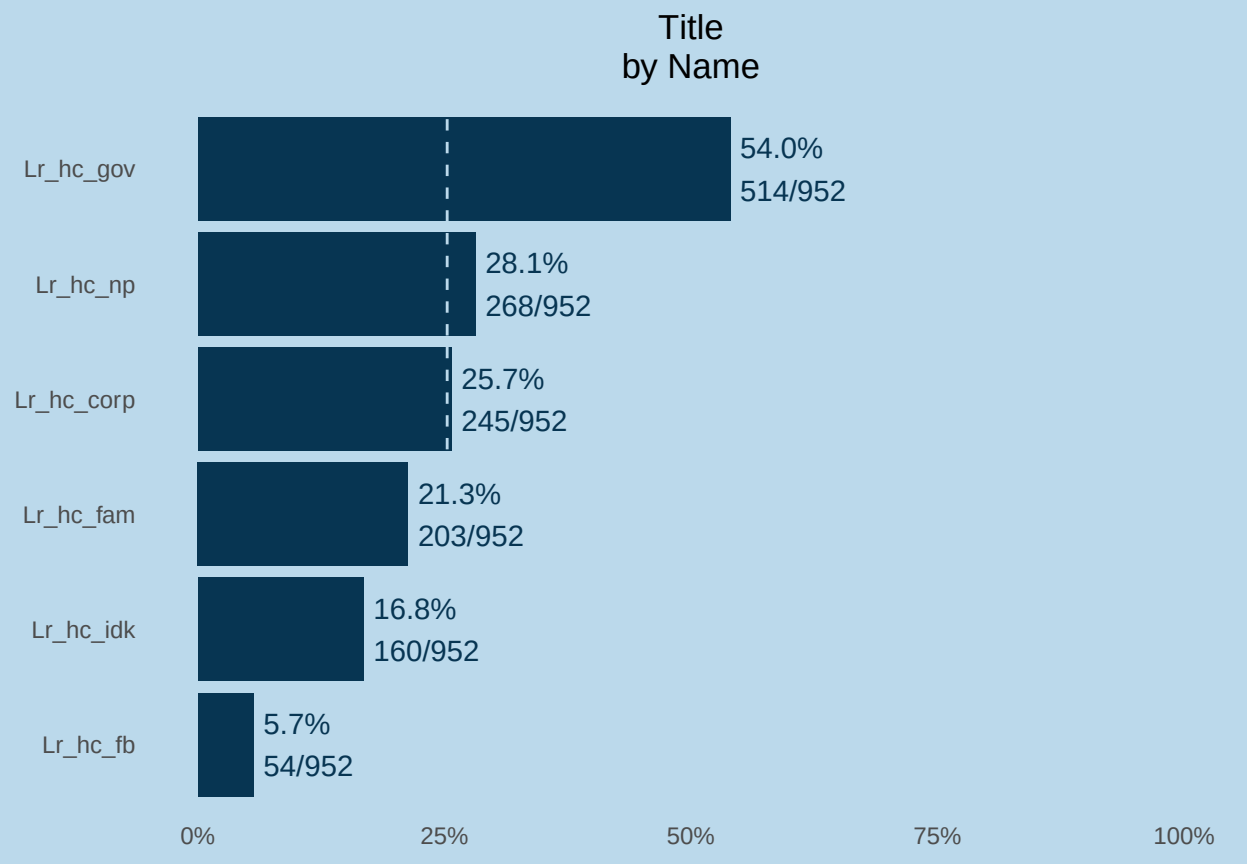
```
##
## [[4]]
```


Title
by Name
Lr_food_fam
50.7%
483/952
Lr_food_np
43.0%
409/952
Lr_food_gov
31.4%
299/952
Lr_food_fb
21.0%
200/952
Lr_food_idk
16.0%
152/952
Lr_food_corp
8.6%
82/952
0%
25%
50%
75%
100%

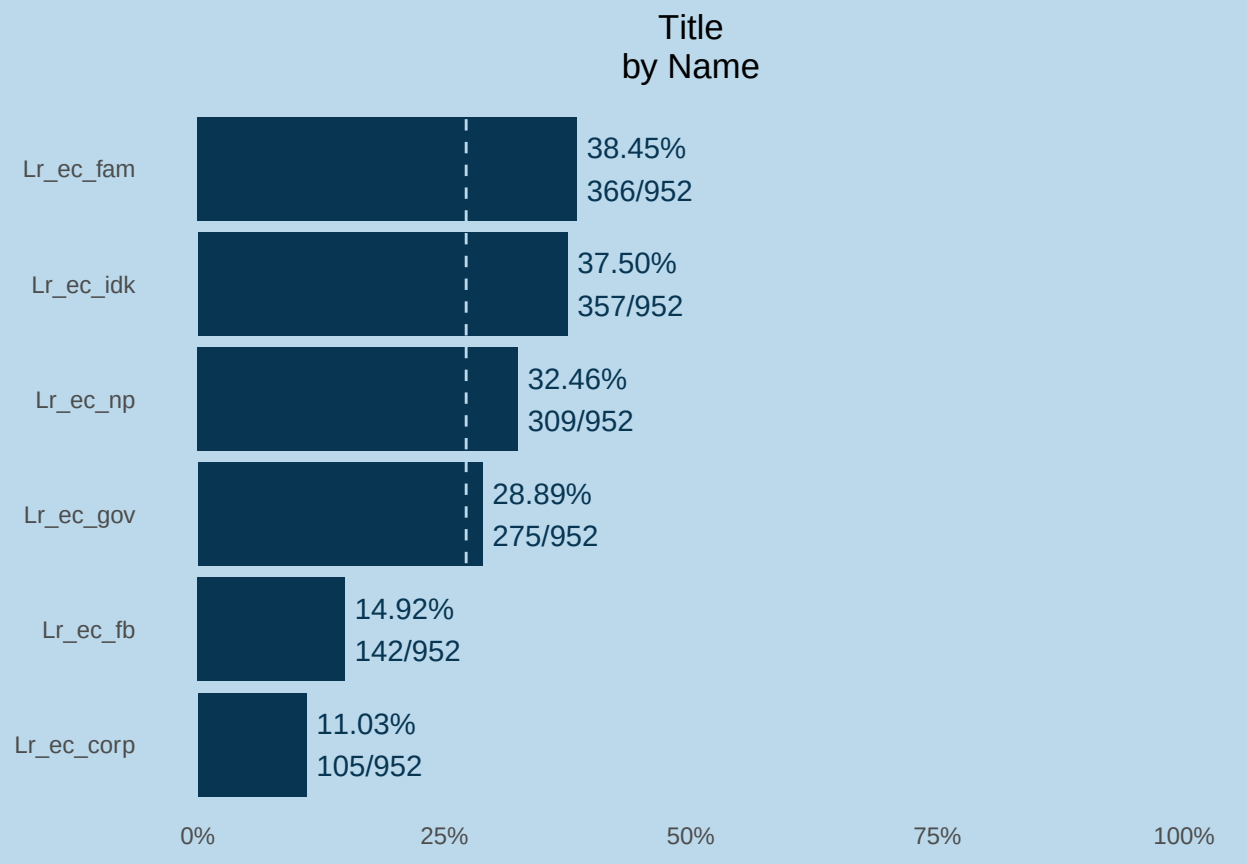
```
##
## [[5]]
```


Title
by Name
Lr_wtr_gov
Lr_wtr_idk
Lr_wtr_fam
Lr_wtr_np
Lr_wtr_fb
Lr_wtr_corp
60.50%
576/952
23.53%
224/952
20.27%
193/952
19.75%
188/952
7.67%
73/952
6.93%
66/952
0%
25%
50%
75%
100%

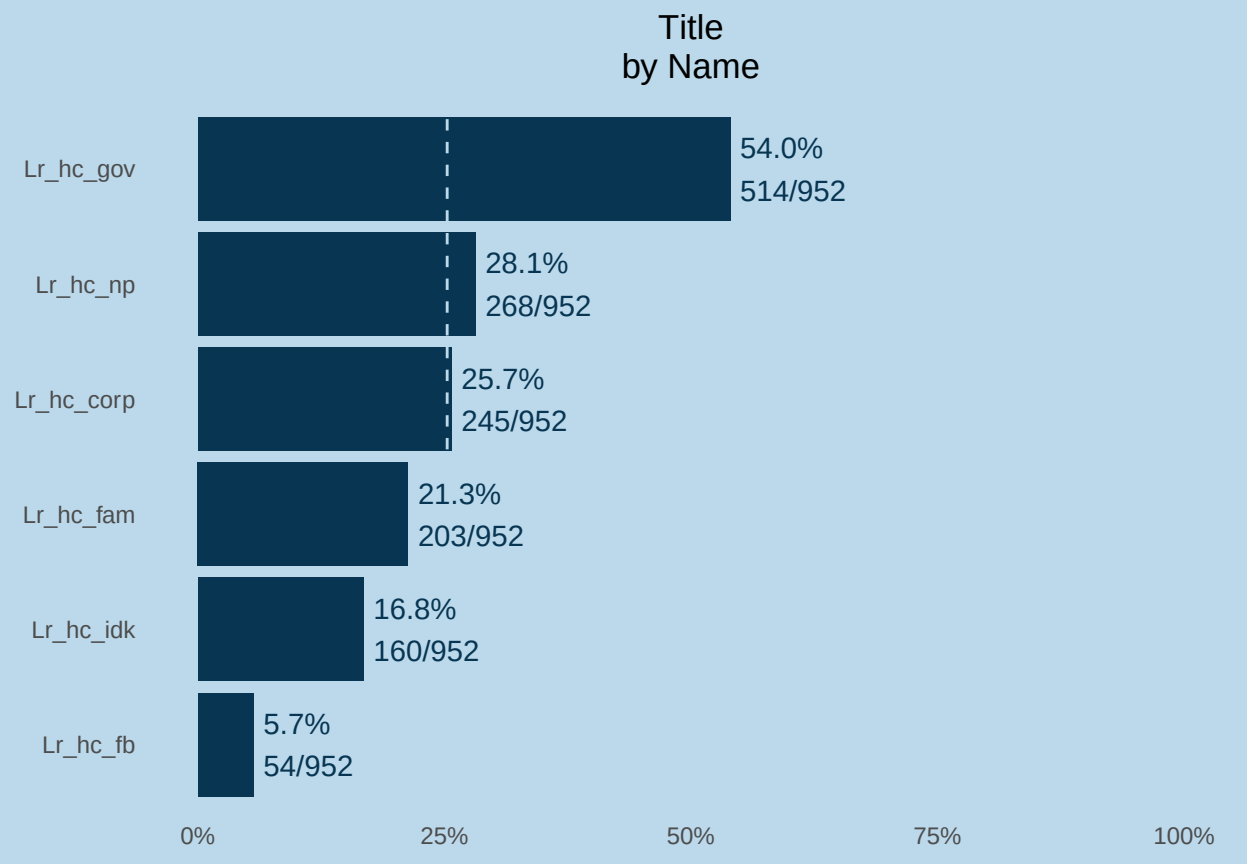
```
##
## [[6]]
```


Title
by Name
Lr_hc_gov
54.0%
514/952
Lr_hc_np
28.1%
268/952
Lr_hc_corp
25.7%
245/952
Lr_hc_fam
21.3%
203/952
Lr_hc_idk
16.8%
160/952
Lr_hc_fb
5.7%
54/952
0%
25%
50%
75%
100%

```
##
## [[7]]
```


Title
by Name
Lr_ec_fam
38.45%
366/952
Lr_ec_idk
37.50%
357/952
Lr_ec_np
32.46%
309/952
Lr_ec_gov
28.89%
275/952
Lr_ec_fb
14.92%
142/952
Lr_ec_corp
11.03%
105/952
0%
25%
50%
75%
100%

```
##
## [[8]]
```




```
wrangled %>% pivot_longer(cols = starts_with("lr_stress_")) %>%
  group_by(name) %>% summarize(mean = mean(value, na.rm = TRUE))
```

```
## # A tibble: 6 x 2
##   name            mean
##   <chr>          <dbl>
## 1 lr_stress_corp 0.106
## 2 lr_stress_fam  0.733
## 3 lr_stress_fb   0.221
## 4 lr_stress_gov  0.105
## 5 lr_stress_idk  0.132
## 6 lr_stress_np   0.284
```

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: 12 x 2
##                                   trans     n
##                                <int+lbl> <int>
```

```
##  1  1 [drive alone]                          185
##  2  2 [public bus]                           177
##  3  3 [carpool]                                7
##  4  4 [bike]                                  34
##  5  5 [scooter]                                2
##  6  6 [subway]                               371
##  7  7 [walk]                                 223
##  8  8 [commuter rail]                         23
##  9 10 [private bus, shuttle]                   2
## 10 11 [ferry, commuter boat]                   2
## 11 12 [taxi, ride hail, for-hire vehicle]     57
## 12 13 [other]                                 22
```

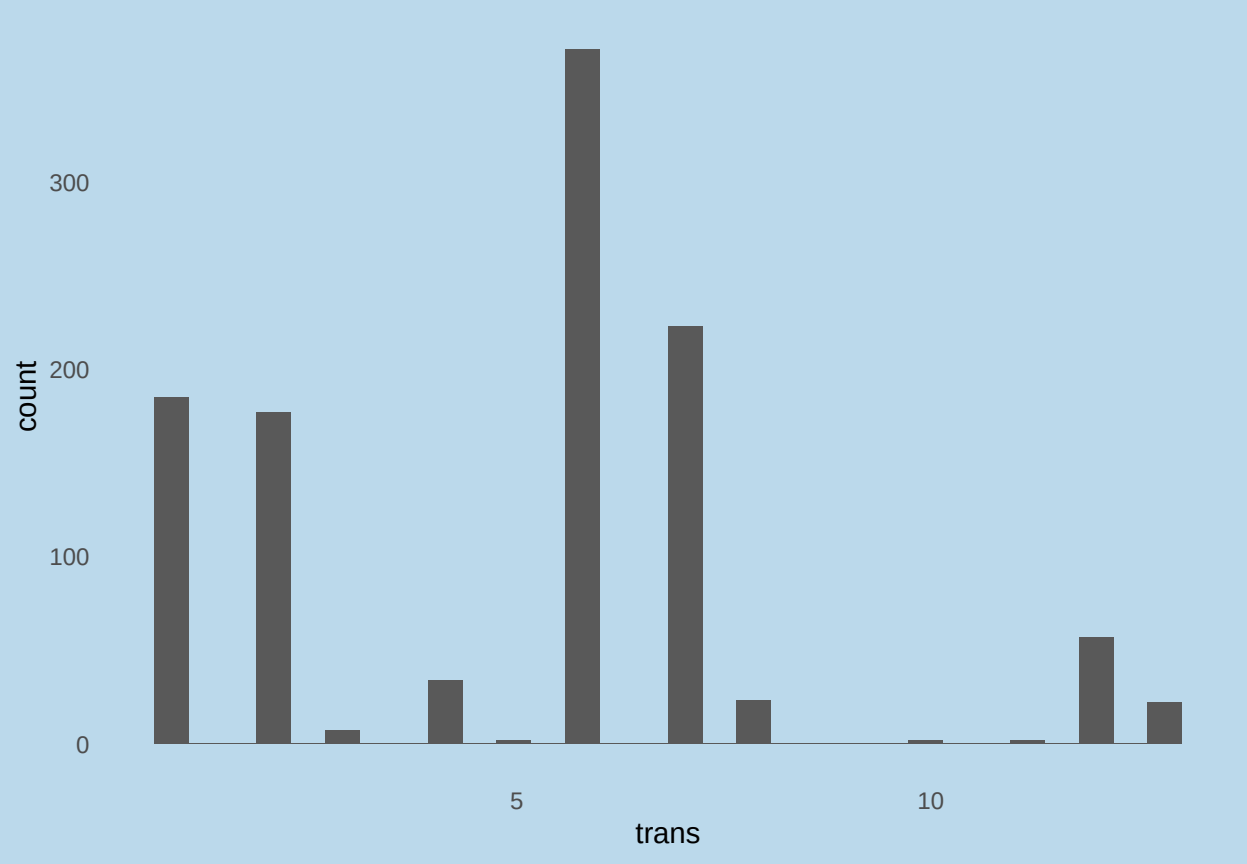
```
make_plots(wrangled, demographics, "trans")
```

```
## $borough
## NULL
##
## $decade
## NULL
##
## $gen
## NULL
##
## $race_census
## NULL
##
## $not_eng
## NULL
##
## $mar
## NULL
##
## $sch_level_cat
## NULL
##
## $hh_ch_0_17_bi
## NULL
##
## $hh_65_bi
## NULL
##
## $inc_dist
## NULL
##
## $emp_status_before
## NULL
##
## $emp_status_after
## NULL
##
## $res_cat
## NULL
```

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

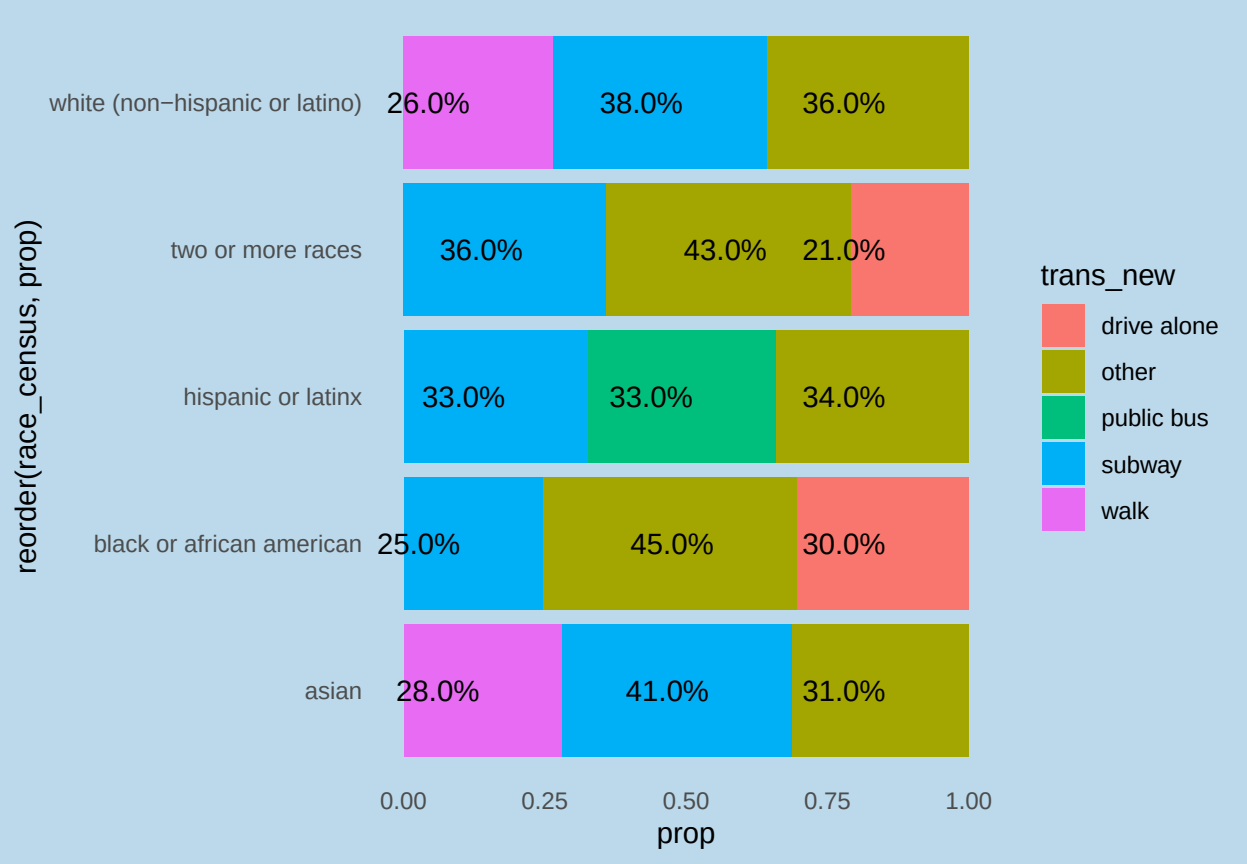
```
## Don't know how to automatically pick scale for object of type haven_labelled/vctrs_vctr/integer. Defa
```

```
## `stat_bin()` using `bins = 30`. Pick better value with `binwidth`.
```




```
wrangled %>% group_by(race_census) %>% count(race_census, trans) %>% arrange(race_census, desc(n)) %>%
  mutate(trans_new = ifelse(row_number() < 3, to_character(trans), "other")) %>%
  group_by(race_census, trans_new) %>% summarize(n = sum(n)) %>%
  group_by(race_census) %>% mutate(denom = sum(n), prop = n/denom) %>%
  arrange(race_census, prop) %>%
  mutate(label = ifelse(row_number()<=2, scales::percent(prop), "")) %>%
  filter(denom > 1) %>% na.omit() %>%
  ggplot(aes(x = prop, y = reorder(race_census, prop), fill = trans_new)) + geom_col(position = "fill")
  geom_text(aes(label = scales::percent(signif(prop, 2))), position = "fill", hjust = 2)
```

```
## `summarise()` has grouped output by 'race_census'. You can override using the
## `.groups` argument.
```



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

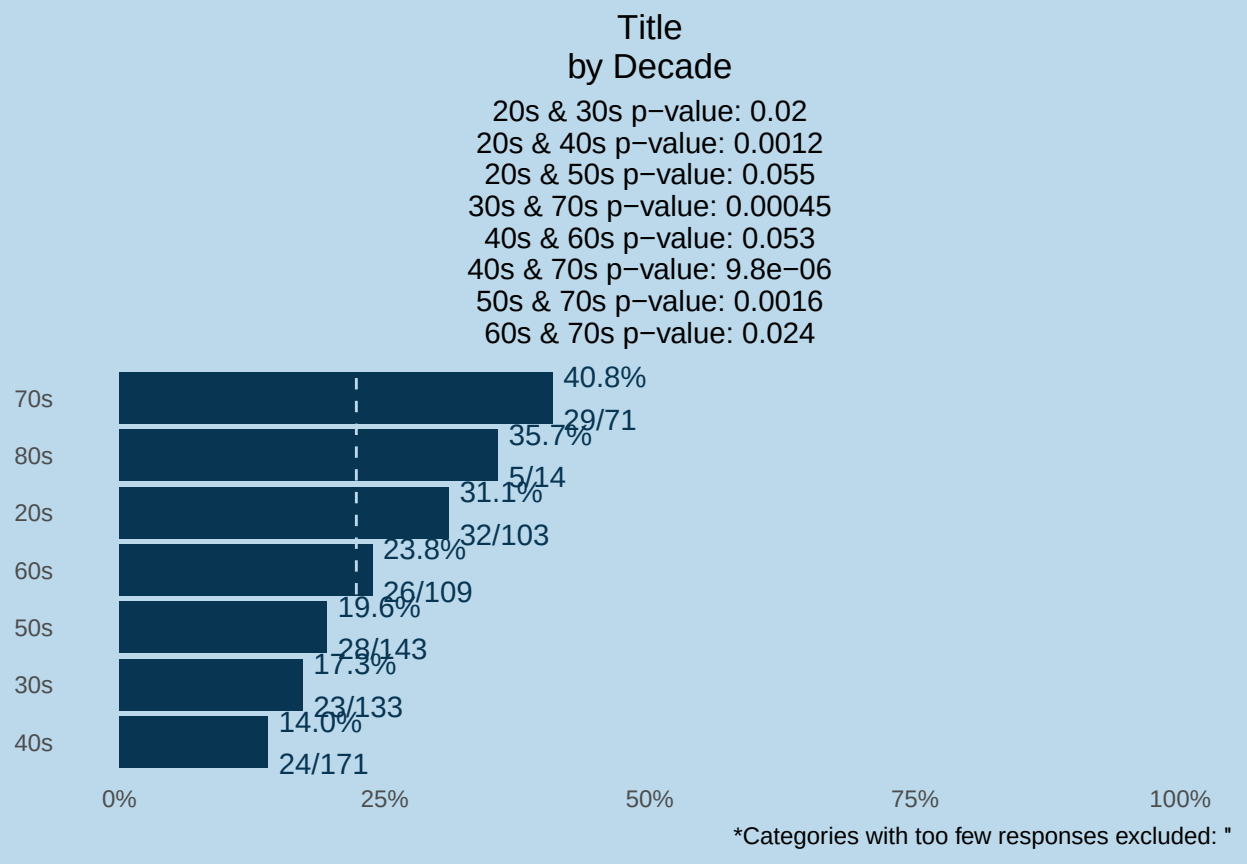
Run distribution over population Run distribution by sub-demographics (a-k) Compare and find gaps (test unequal proportions)

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

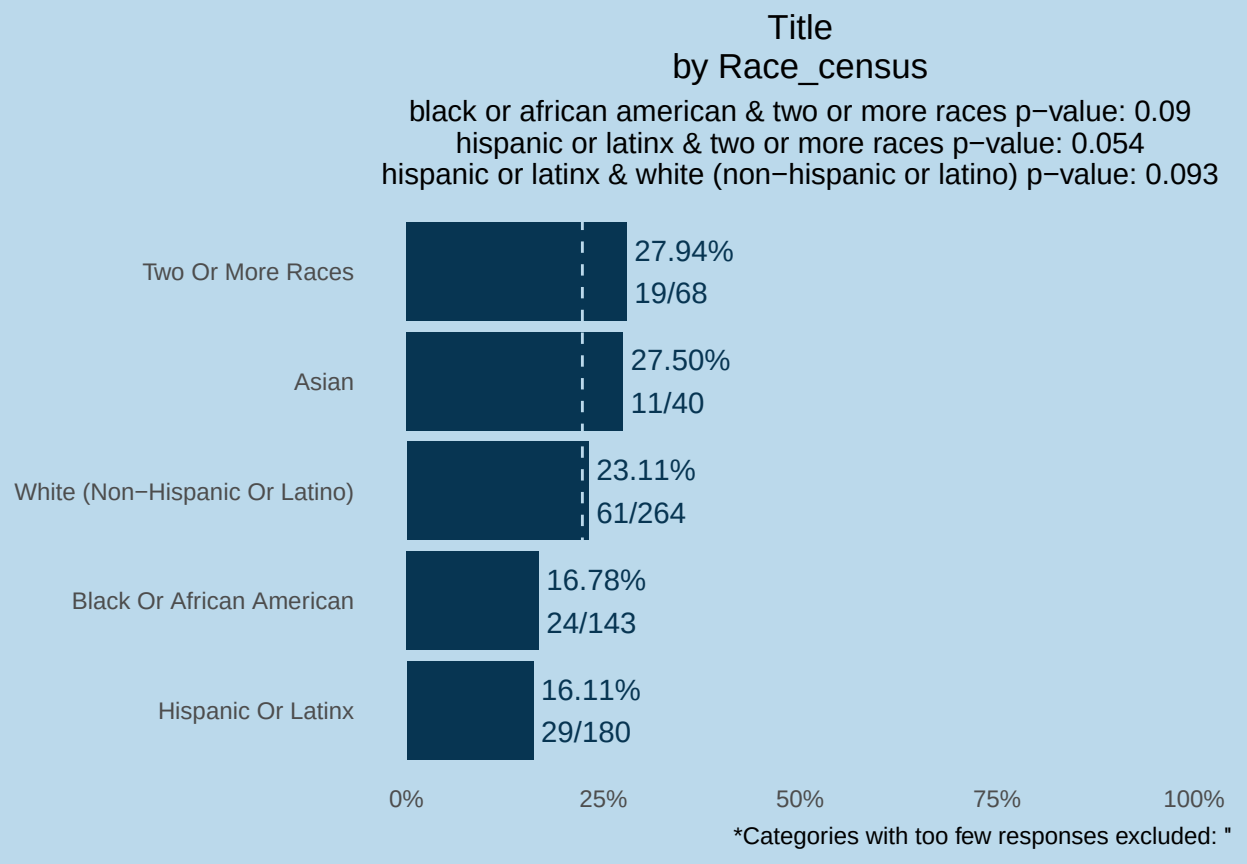
```
## [1] 0.223262
```

```
make_plots(wrangled, demographics, "diff_trans")
```

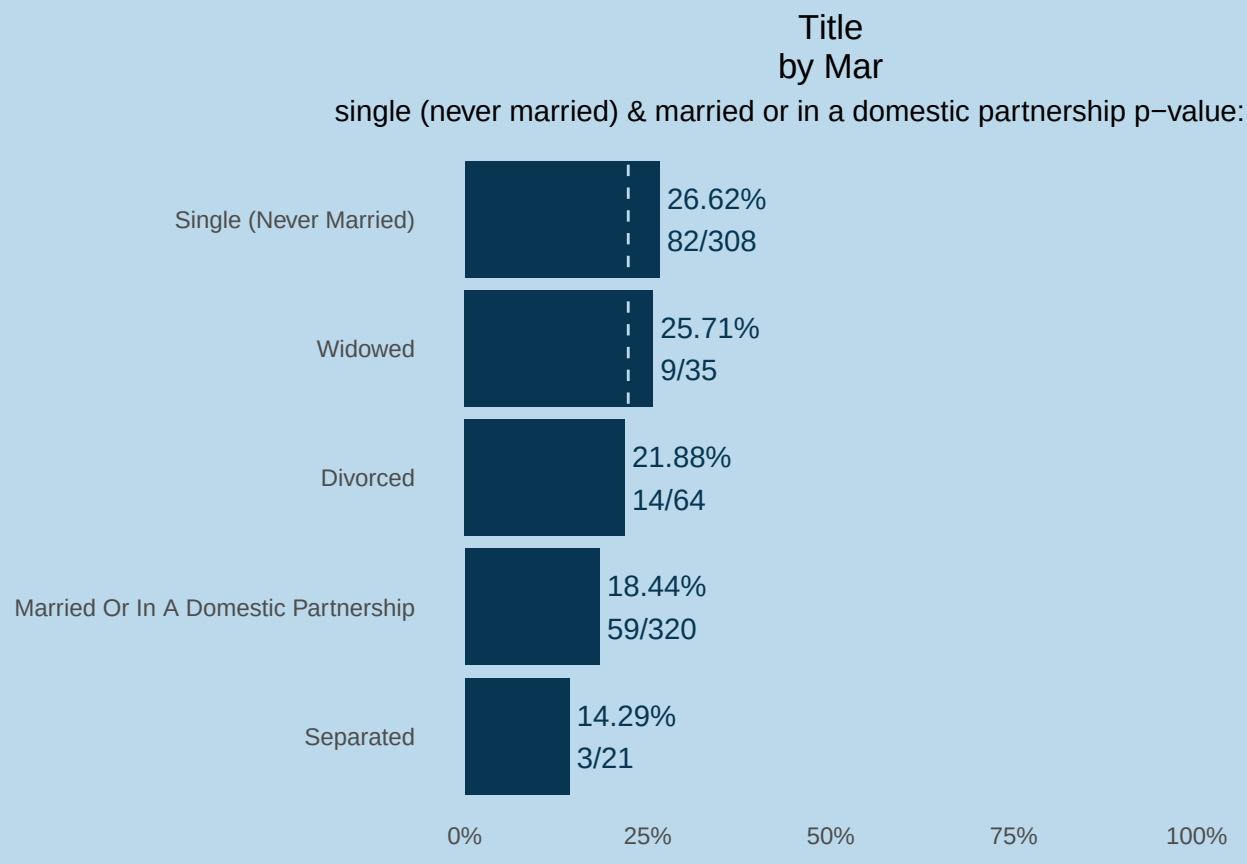
```
## $borough
## NULL
##
## $decade
```



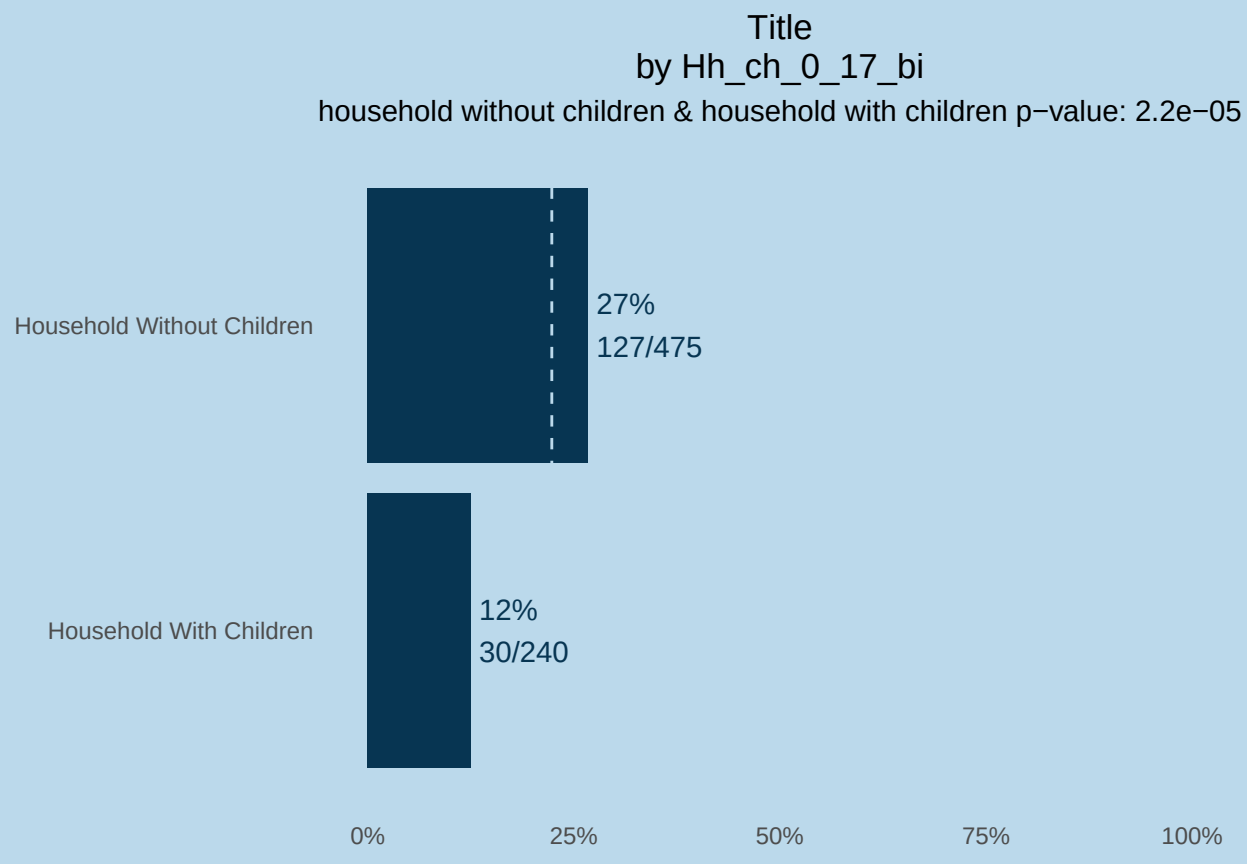

```
##
## $gen
## NULL
##
## $race_census
```



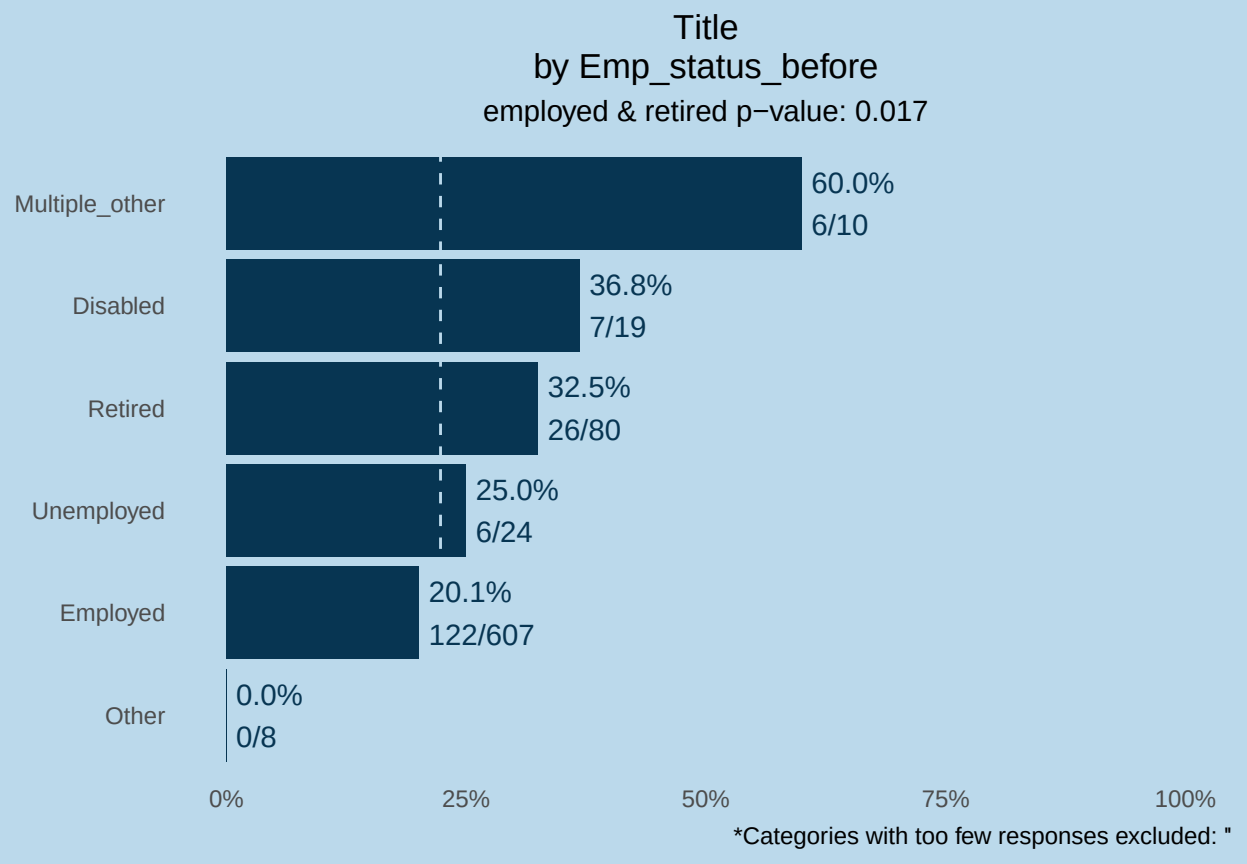

```
##
## $not_eng
## NULL
##
## $mar
```



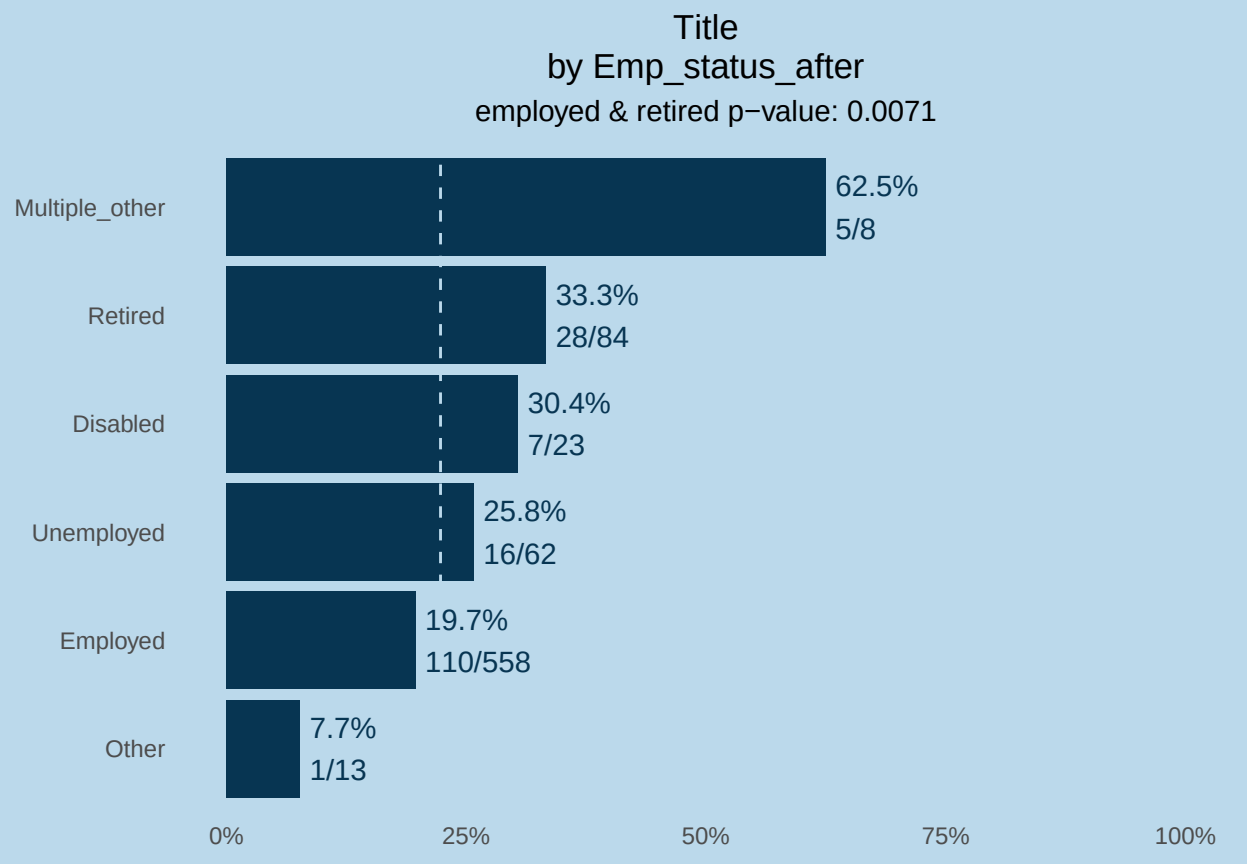

```
##
## $sch_level_cat
## NULL
##
## $hh_ch_0_17_bi
```




```
##
## $hh_65_bi
## NULL
##
## $inc_dist
## NULL
##
## $emp_status_before
```




```
##
## $emp_status_after
```




```
##
## $res_cat
## 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)

```
table(wrangled$res_cat)
```

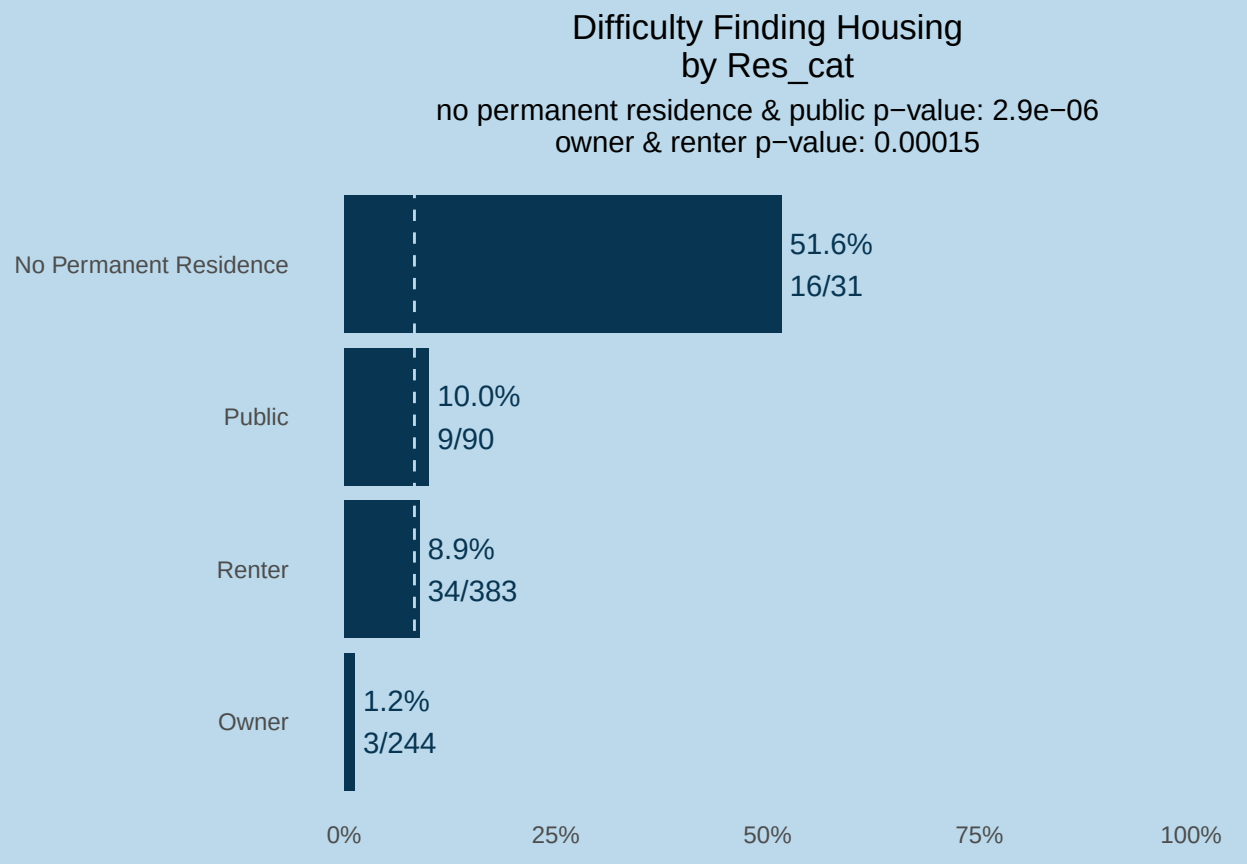
```
##
## no permanent residence                  owner                 public
##                     37                    425                    105
##                 renter
##                    538
```

```
mean(wrangled$res_cat == "public")
```

```
## [1] 0.09502262
```

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

```
## $res_cat
```



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] 0.4048913
```

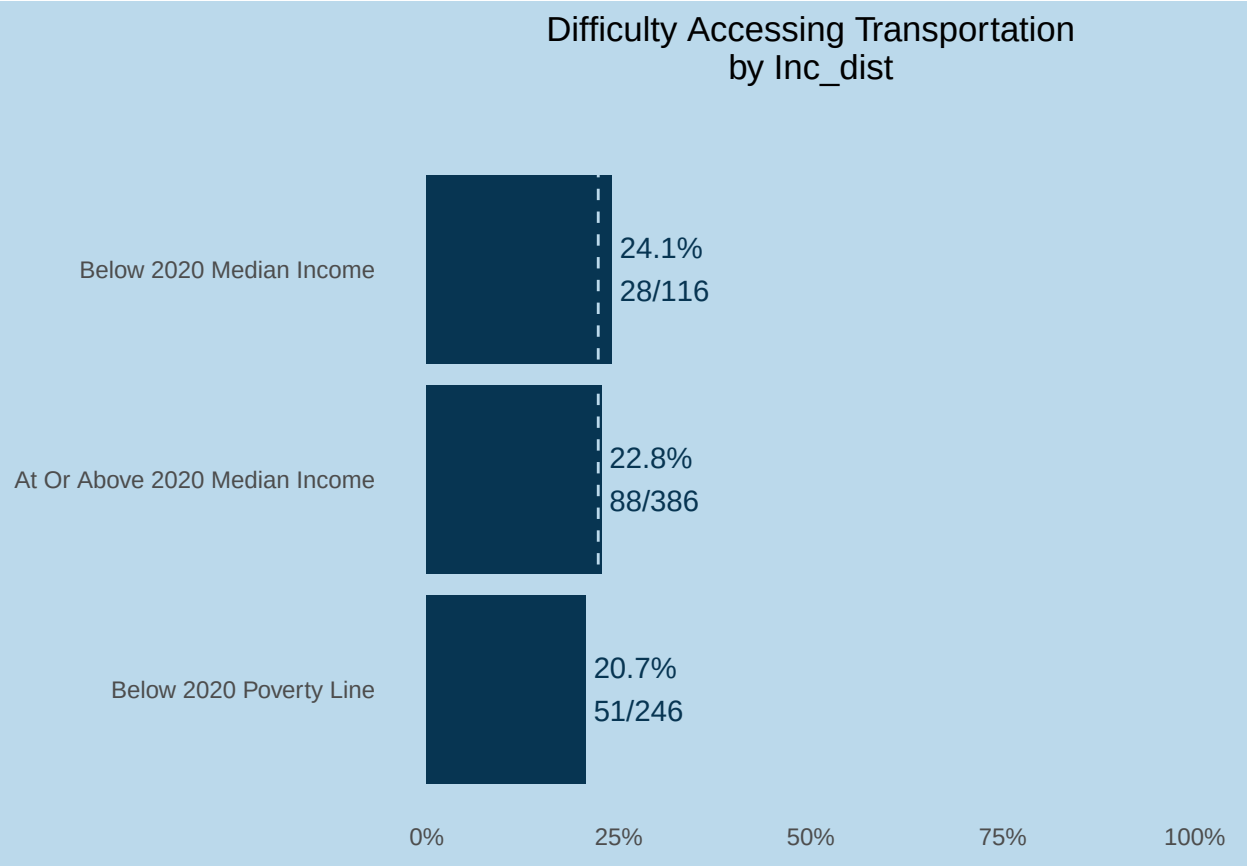
```
wrangled %>% count(inc_dist, diff_trans) %>% mutate_if(is.labelled, to_character)
```

```
## # A tibble: 9 x 3
##   inc_dist                      diff_trans                                    n
```

```
##   <chr>                          <chr>                                      <int>
## 1 below 2020 poverty line        not difficulty accessing or using transp~   195
## 2 below 2020 poverty line        difficulty accessing or using transporta~    51
## 3 below 2020 poverty line        <NA>                                         43
## 4 below 2020 median income       not difficulty accessing or using transp~    88
## 5 below 2020 median income       difficulty accessing or using transporta~    28
## 6 below 2020 median income       <NA>                                         42
## 7 at or above 2020 median income not difficulty accessing or using transp~   298
## 8 at or above 2020 median income difficulty accessing or using transporta~    88
## 9 at or above 2020 median income <NA>                                        272
```

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

```
## $inc_dist
```



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)

note: our people with limited internet access will be highly limited

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

```
## [1] 0.8413866
```

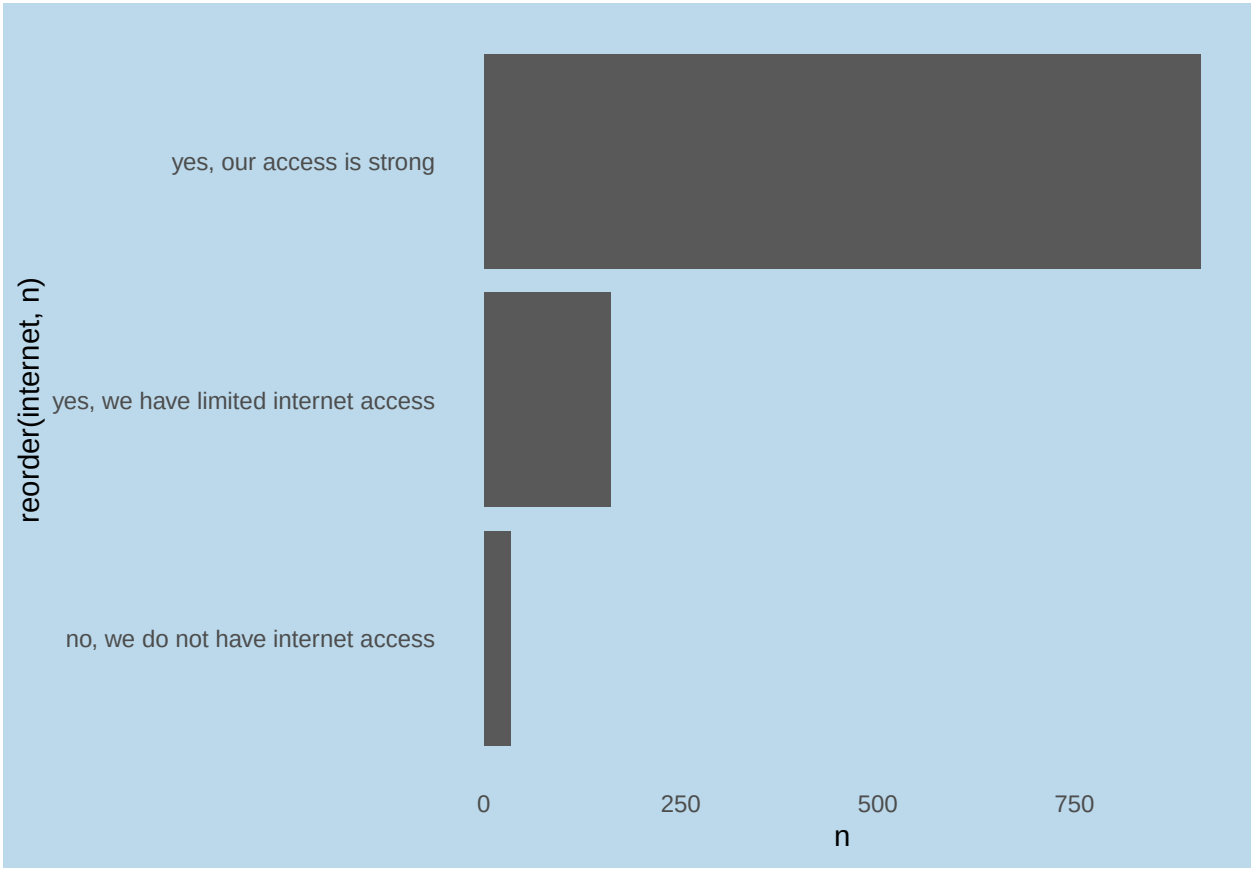
```
mean(wrangled$internet_acc, na.rm = TRUE)
```

```
## [1] 0.8235294
```

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

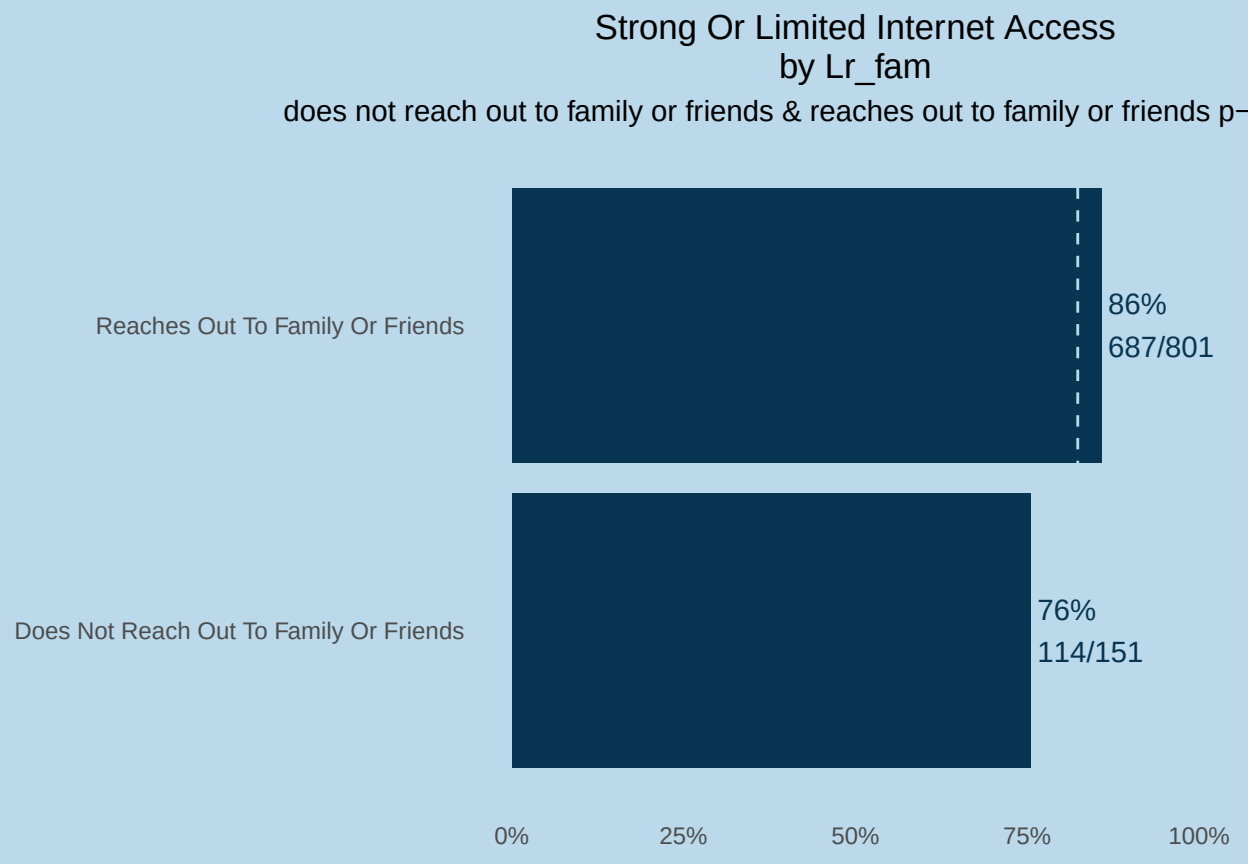
```
## [1] 0.1764706
```

```
count(wrangled, internet) %>% mutate_if(is.labelled, to_character) %>%
  ggplot(aes(x = n, y = reorder(internet, n))) + geom_col()
```



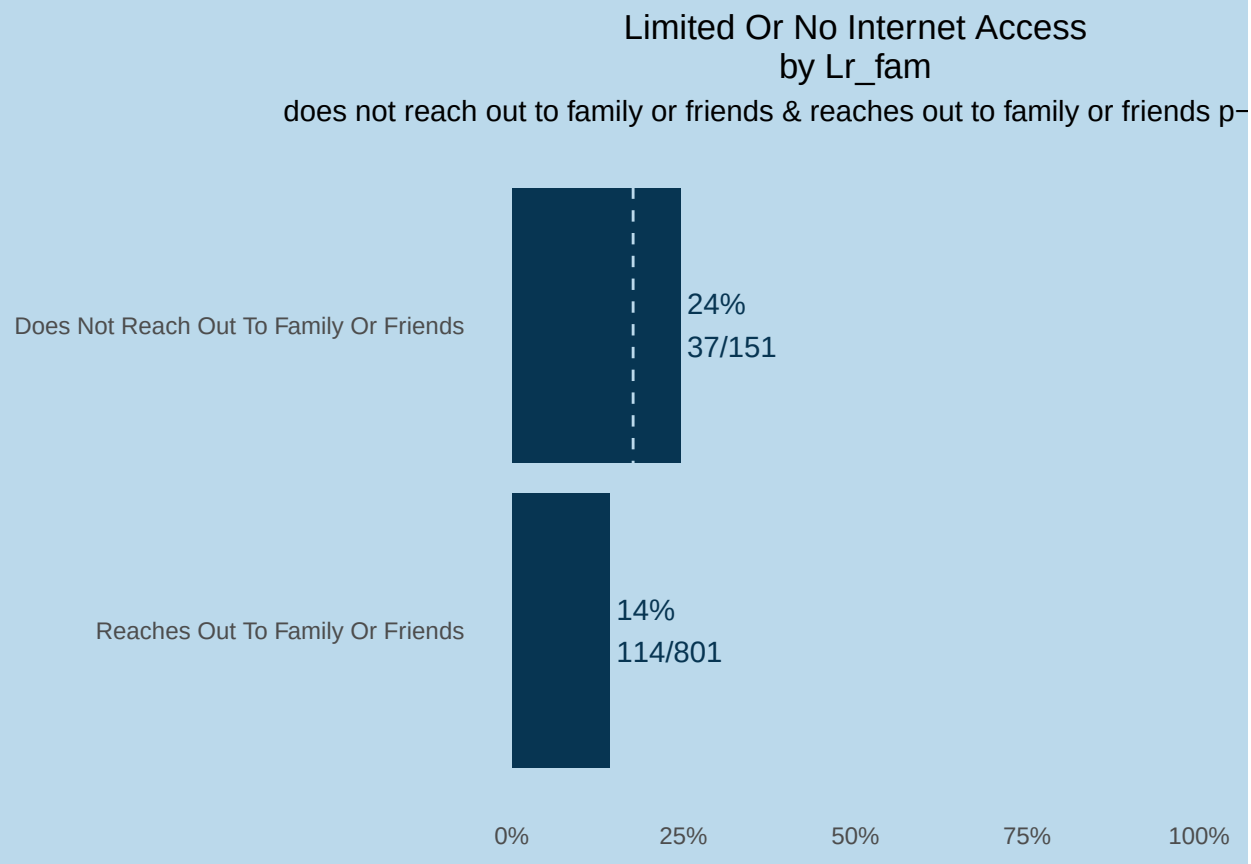

```
make_plots(wrangled, "lr_fam", "internet_acc", title = "Strong or Limited Internet Access")
```

```
## $lr_fam
```




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

```
## $lr_fam
```

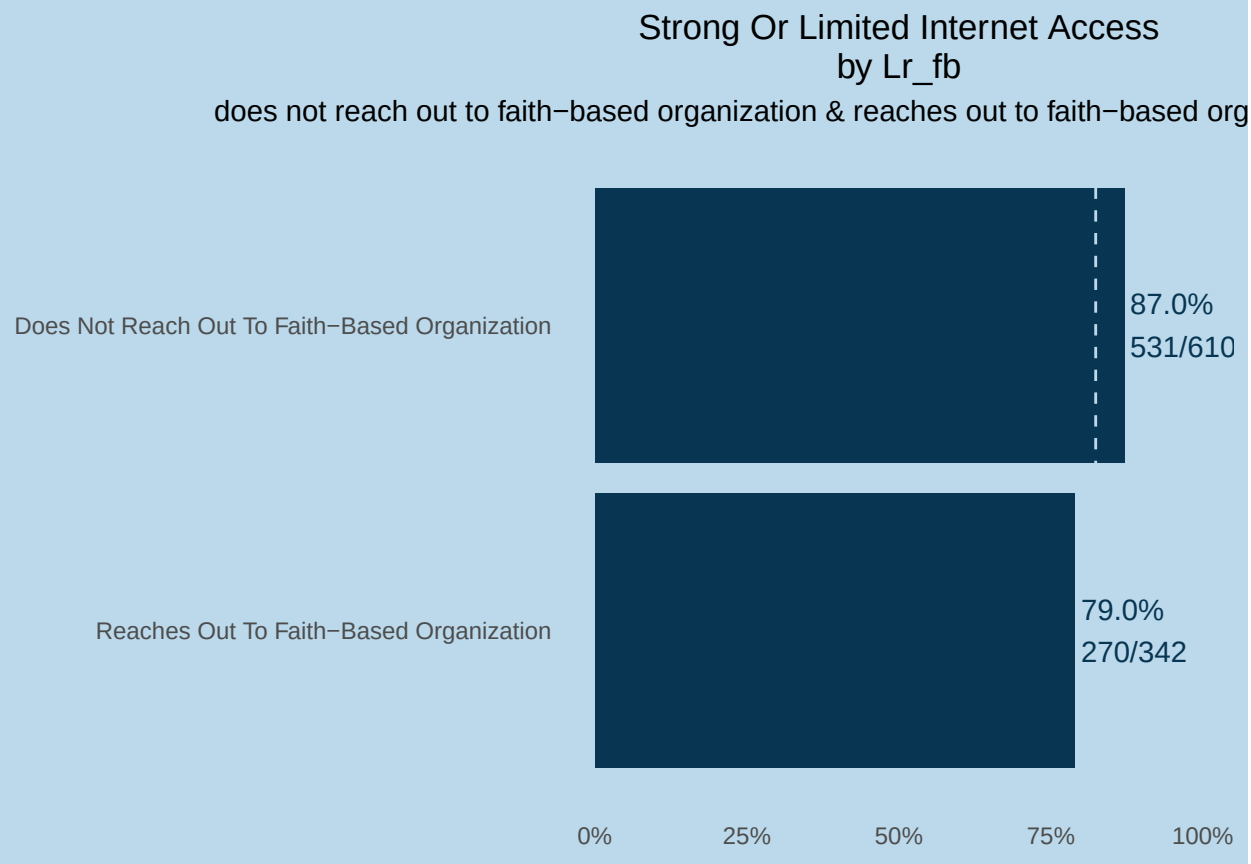


6.9)People with limited or no internet access are more likely to use faith-based resources

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)

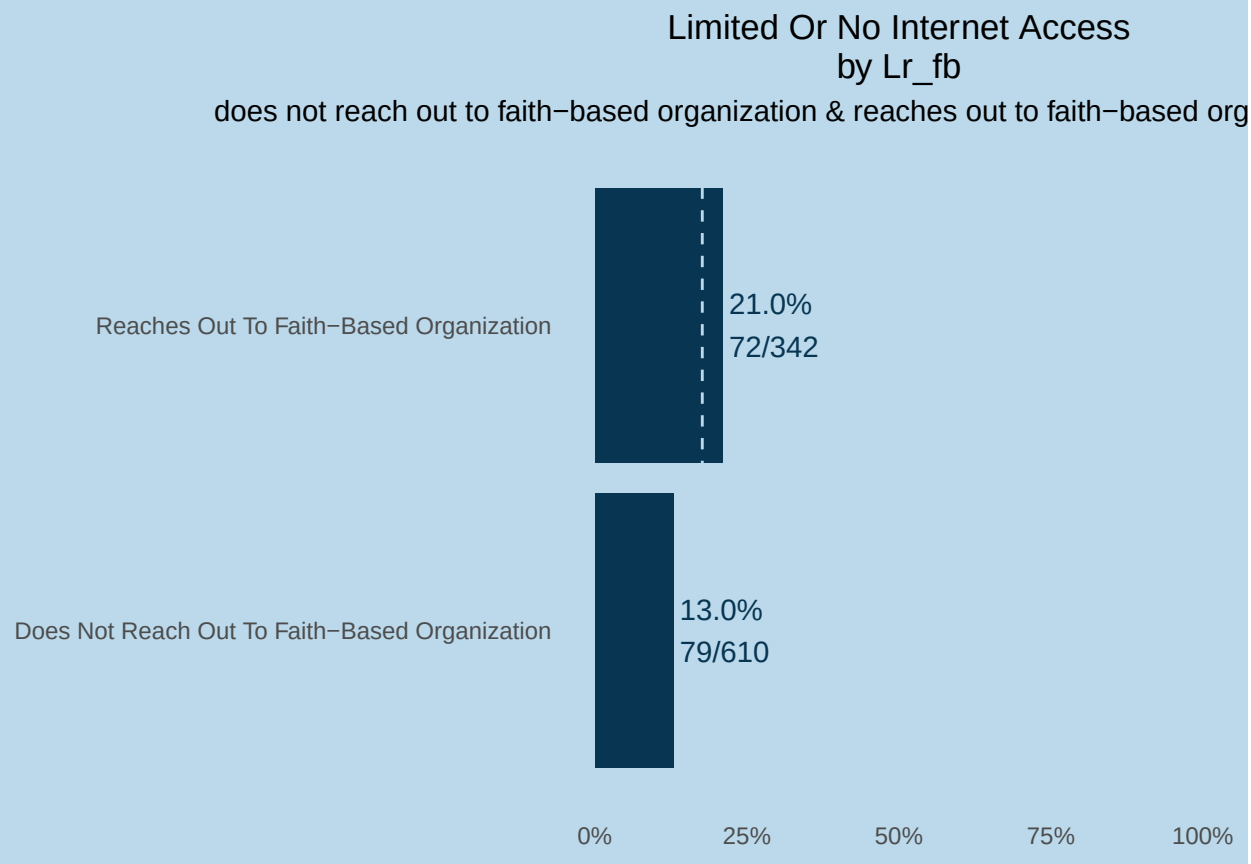
```
make_plots(wrangled, "lr_fb", "internet_acc", title = "Strong or Limited Internet Access")
```

```
## $lr_fb
```




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

```
## $lr_fb
```


Limited Or No Internet Access
by Lr_fb
does not reach out to faith−based organization & reaches out to faith−based org
Reaches Out To Faith−Based Organization
21.0%
72/342
Does Not Reach Out To Faith−Based Organization
13.0%
79/610
0%
25%
50%
75%
100%