CATEGORICAL DATA IN THE TIDYVERSE

Reordering factors

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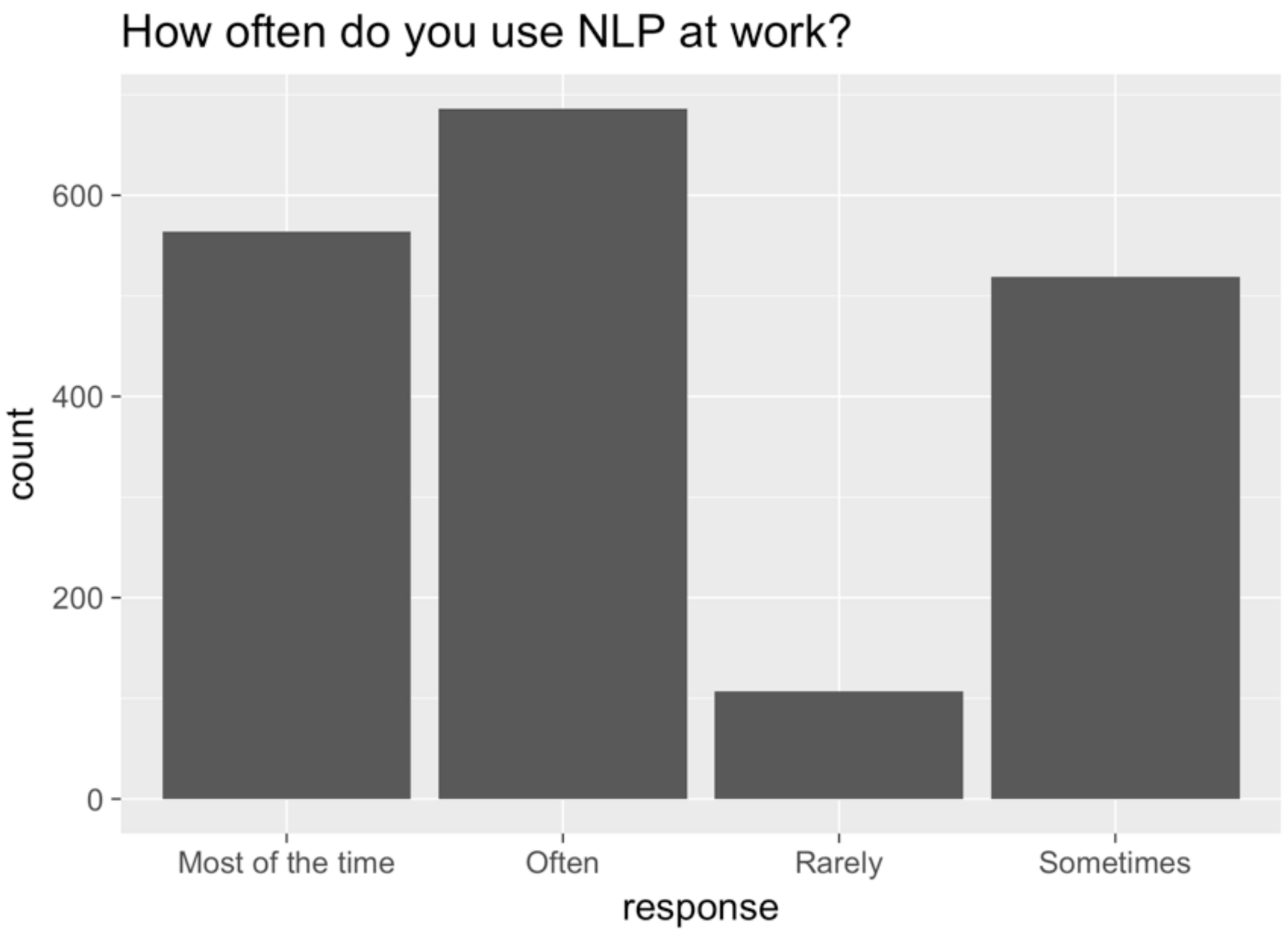
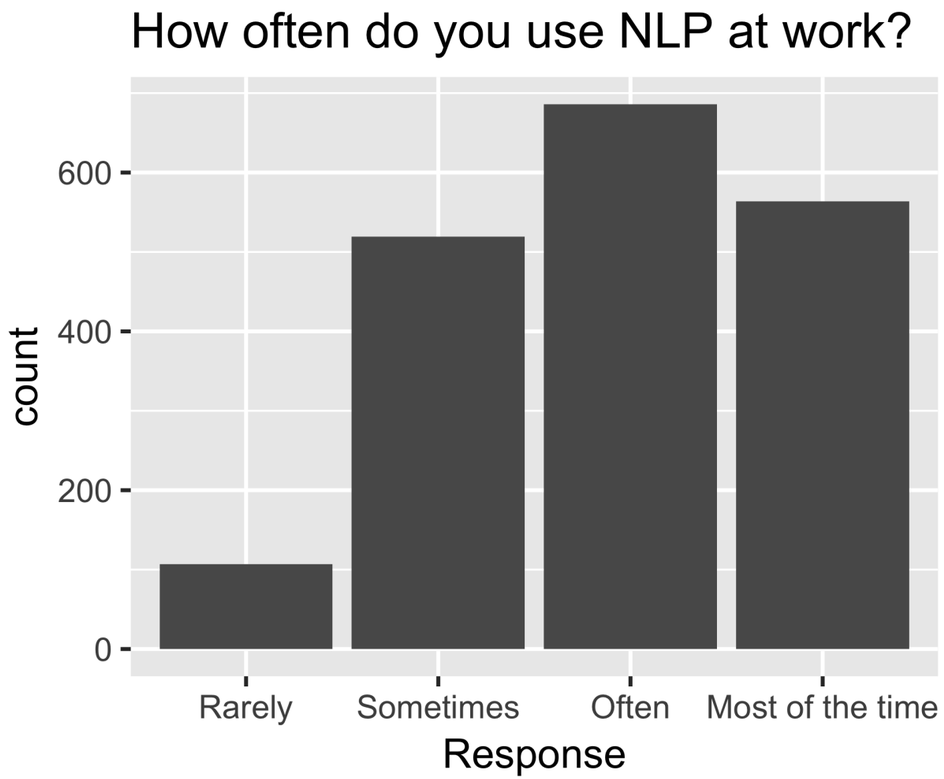

How often do you use NLP at work?
count
600
400
200
0
Most of the time
Often
Rarely
Sometimes
response

Corrected graph

```
ggplot(aes(nlp_frequency,
           x = fct_relevel(response,
           "Rarely", "Sometimes", "Often", "Most of the time"))) +
       geom_bar()
```



fct_reorder()

```
nlp_frequency %>%
    pull(response) %>%
    levels()
```

```
[1] "Most of the time" "Often"            "Rarely"
[4] "Sometimes"
```

```
nlp_frequency %>%
    mutate(response = fct_relevel(response,
            "Often", "Most of the time")) %>%
    pull(response) %>%
    levels()
```

```
[1] "Often"            "Most of the time" "Rarely"
[4] "Sometimes"
```

Additional arguments

```
nlp_frequency %>%
    mutate(response = fct_relevel(response,
            "Often", "Most of the time", after = 2)) %>%
            pull(response) %>%
            levels()
```

```
nlp_frequency %>%
    mutate(response = fct_relevel(response,
            "Often", "Most of the time", after = Inf) %>%
    pull(response) %>%
    levels()
```

Both return:

```
[1] "Rarely"            "Sometimes"         "Often"
[4] "Most of the time"
```

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Let's practice!

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Renaming factor levels

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Introduction to FiveThirtyEight dataset

```
# A tibble: 1,040 x 27
   RespondentID travel_amount      do_recline       height
          <dbl> <fct>              <fct>            <fct>
 1   3436139758 Once a year or le… NA               NA
 2   3434278696 Once a year or le… About half the … "6'3\""
 3   3434275578 Once a year or le… Usually          "5'8\""
 4   3434268208 Once a year or le… Always           "5'11\…
 5   3434250245 Once a month or l… About half the … "5'7\""
 6   3434245875 Once a year or le… Usually          "5'9\""
 7   3434235351 Once a month or l… Once in a while  "6'2\""
 8   3434218031 Once a year or le… Once in a while  "6'0\""
 9   3434213681 Once a year or le… Once in a while  "6'0\""
10   3434172894 Once a year or le… Never            "5'6\""
# ... with 1,030 more rows, and 23 more variables:
#   children_sub_18 <fct>, middle_arm_rest_three <fct>,
#   middle_arm_rest_two <fct>, window_shade_control <fct>,
#   rude_move_seats <fct>, rude_talk <fct>,
#   times_get_up <fct>, recliner_obligation <fct>,
#   rude_recline <fct>, eliminate_recline <fct>,
#   rude_switch_seats_friend <fct>,
#   rude_switch_seats_family <fct>, rude_bathroom <fct>,
#   rude_walking <fct>, rude_baby <fct>,
#   rude_unruly_children <fct>, personal_electronics <fct>,
#   smoking <fct>, gender <fct>, age <fct>, income <fct>,
#   education <fct>, location <fct>
```

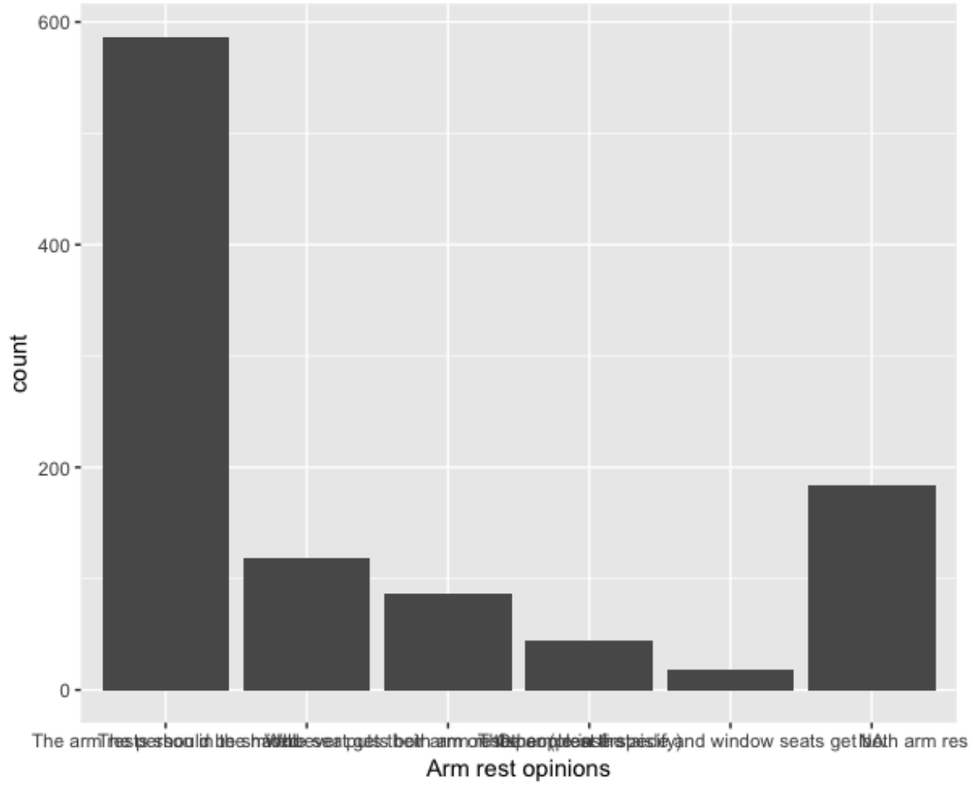
fct_recode()

```
levels(flying_etiquette$middle_arm_rest_three)
[1] "Other (please specify)"
[2] "The arm rests should be shared"
[3] "The people in the aisle and window seats get both arm rests"
[4] "The person in the middle seat gets both arm rests"
[5] "Whoever puts their arm on the arm rest first"
```

```
ggplot(flying_etiquette, aes(x = fct_infreq(middle_arm_rest_three))) +
    geom_bar() +
    labs(x = "Arm rest opinions")
```

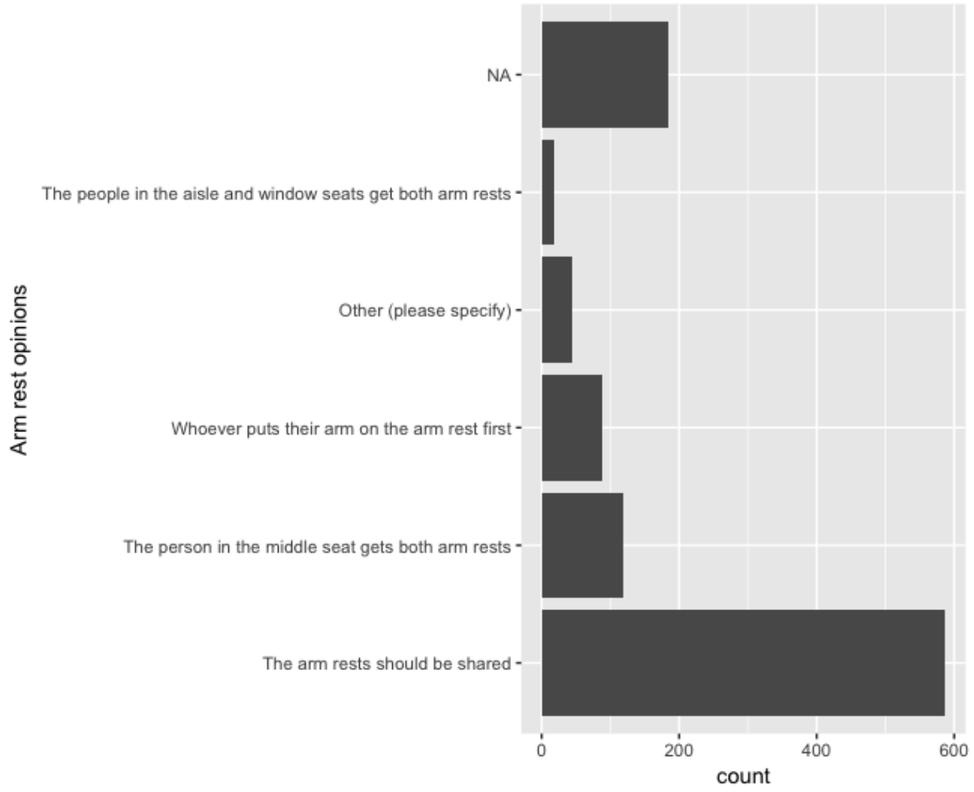
Crowded text

```
ggplot(flying_etiquette, aes(x = fct_infreq(middle_arm_rest_three))) +
    geom_bar() +
    labs(x = "Arm rest opinions")
```



Extraneous text

```
ggplot(flying_etiquette, aes(x = fct_infreq(middle_arm_rest_three))) +
    geom_bar() +
    coord_flip() +
    labs(x = "Arm rest opinions")
```



Changing with fct_recode()

```
flying_etiquette %>%
    mutate(middle_arm_rest_three = fct_recode(middle_arm_rest_three,
    "Other" = "Other (please specify)",
    "Everyone should share" = "The arm rests should be shared",
    "Aisle and window people" =
    "The people in the aisle and window seats get both arm rests",
    "Middle person" = "The person in the middle seat gets both arm rests",
    "Fastest person" = "Whoever puts their arm on the arm rest first"
  )) %>%
  count(middle_arm_rest_three)
```

```
# A tibble: 6 x 2
  middle_arm_rest_three       n
  <fct>                   <int>
1 Everyone should share     587
2 Middle person             119
3 Fastest person             87
4 Other                      45
5 Aisle and window people    18
6 NA                        184
```

Renaming a couple levels

```
flying_etiquette %>%
    mutate(middle_arm_rest_three = fct_recode(middle_arm_rest_three,
    "Everyone should share" = "The arm rests should be shared")) %>%
     count(middle_arm_rest_three)
```

```
# A tibble: 6 x 2
  middle_arm_rest_three                                    n
  <fct>                                                <int>
1 Other (please specify)                                  45
2 Everyone should share                                  587
3 The people in the aisle and window seats get both …     18
4 The person in the middle seat gets both arm rests      119
5 Whoever puts their arm on the arm rest first            87
6 NA                                                     184
```

Renaming unknown levels

```
flying_etiquette %>%
    mutate(middle_arm_rest_three = fct_recode(middle_arm_rest_three,
    "Everyone should share" = "arm rests should be share")) %>%
     count(middle_arm_rest_three)
```

```
# A tibble: 6 x 2
  middle_arm_rest_three                                        n
  <fct>                                                    <int>
1 Other (please specify)                                      45
2 The arm rests should be shared                             587
3 The people in the aisle and window seats get both …         18
4 The person in the middle seat gets both arm rests          119
5 Whoever puts their arm on the arm rest first                87
6 NA                                                         184
Warning message:
Unknown levels in `f`: arm rests should be share
```

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Collapsing factor levels

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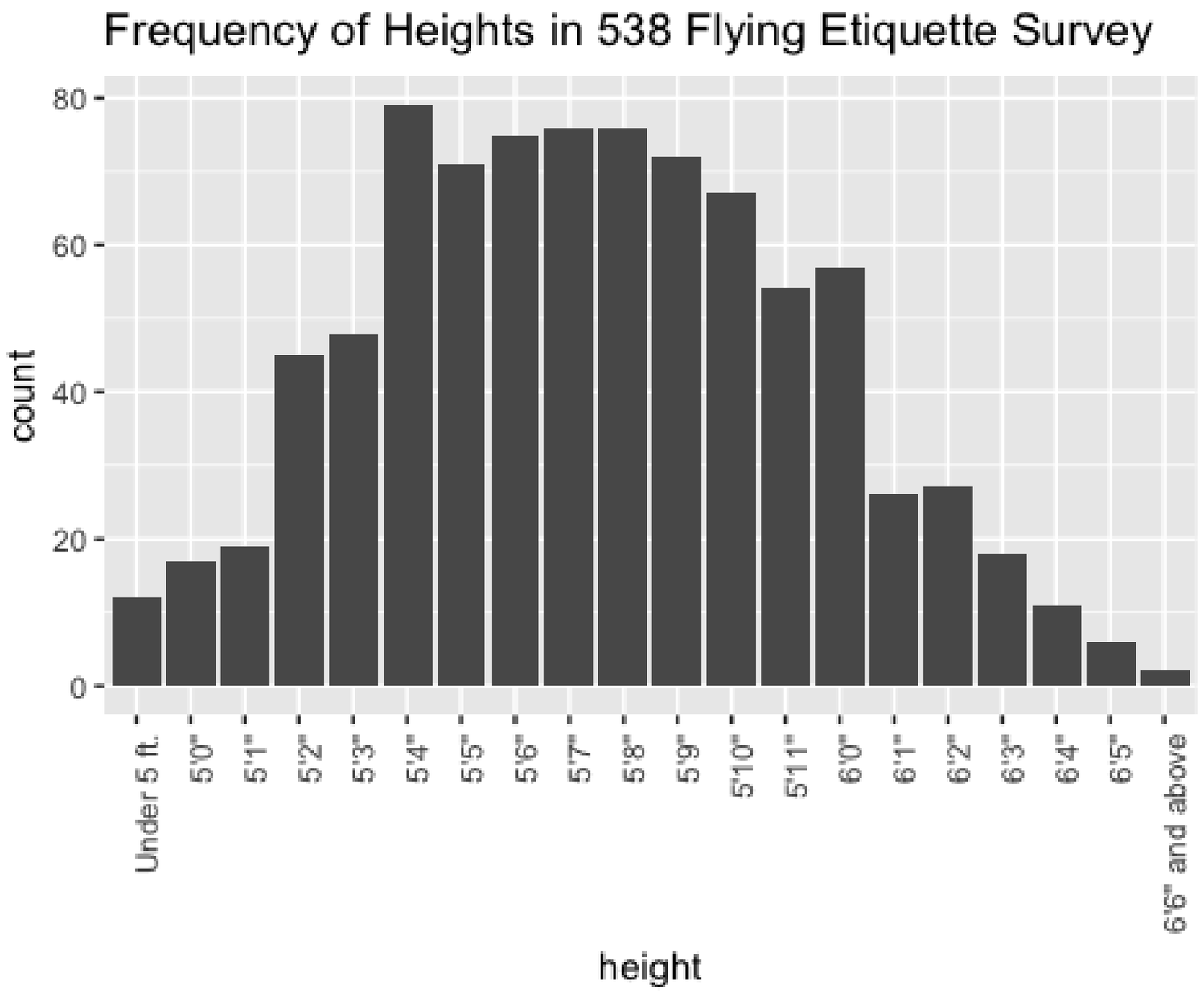
Frequency of Heights in 538 Flying Etiquette Survey
count
80
60
40
20
0
Under 5 ft.
5'0"
5'1"
5'2"
5'3"
5'4"
5'5"
5'6"
5'7"
5'8"
5'9"
5'10"
5'11"
6'0"
6'1"
6'2"
6'3"
6'4"
6'5"
6'6" and above
height

fct_collapse()

```
flying_etiquette %>%
  mutate(height = fct_collapse(height,
              under_5_3 = c("Under 5 ft.", "5'0\"", "5'1\"", "5'2\""),
              over_6_1 = c("6'1\"", "6'2\"", "6'3\"", "6'4\"",
              "6'5\"", "6'6\" and above"))) %>%
  pull(height) %>%
  levels()
```

```
 [1] "under_5_3" "5'10\""    "5'11\""    "5'3\""
 [5] "5'4\""     "5'5\""     "5'6\""     "5'7\""
 [9] "5'8\""     "5'9\""     "6'0\""     "over_6_1"
```

fct_other() keep

```
flying_etiquette %>%
  mutate(new_height = fct_other(height, keep = c("6'4\"", "5'1\""))) %>%
  count(new_height)
```

```
# A tibble: 4 x 2
  new_height     n
  <fct>      <int>
1 "5'1\""       19
2 "6'4\""       11
3 Other        828
4 NA           182
```

fct_other() drop

```
flying_etiquette %>%
  mutate(new_height = fct_other(height,
  drop = c("Under 5 ft.", "5'0\"", "5'1\"", "5'2\"", "5'3\""))) %>%
  pull(new_height) %>%
  levels()
```

```
 [1] "5'4\""           "5'5\""           "5'6\""
 [4] "5'7\""           "5'8\""           "5'9\""
 [7] "5'10\""          "5'11\""          "6'0\""
[10] "6'1\""           "6'2\""           "6'3\""
[13] "6'4\""           "6'5\""           "6'6\" and above"
[16] "Other"
```

fct_lump() prop

```
flying_etiquette %>%
  mutate(new_height = fct_lump(height, prop = .08)) %>%
  count(new_height)
```

```
  new_height     n
  <fct>      <int>
1 "5'4\""       79
2 "5'6\""       75
3 "5'7\""       76
4 "5'8\""       76
5 Other        552
6 NA           182
```

fct_lump() n

```
flying_etiquette %>%
  mutate(new_height = fct_lump(height, n = 3)) %>%
  count(new_height)
```

```
  new_height     n
  <fct>      <int>
1 "5'4\""       79
2 "5'7\""       76
3 "5'8\""       76
4 Other        627
5 NA           182
```

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