## Stat 566 - Project

#### H1N1 Vaccination

#### Natalie Chisam, Rachel Flodin, Kaelan Yu

#### 4/13/2021

#### ## [1] 26707 38 respondent id h1n1 concern h1n1 knowledge behavioral antiviral meds Min. : :0.000 Min. :0.000 :0.00000 ## Min. Min. 1st Qu.: 6676 1st Qu.:1.000 1st Qu.:1.000 1st Qu.:0.00000 ## Median :13353 Median :2.000 Median :1.000 Median :0.00000 ## Mean :13353 :1.618 Mean :1.263 Mean :0.04884 3rd Qu.:0.00000 ## 3rd Qu.:20030 3rd Qu.:2.000 3rd Qu.:2.000 ## Max. :26706 Max. :3.000 Max. :2.000 Max. :1.00000 ## NA's :92 NA's :116 NA's :71 behavioral\_avoidance behavioral\_face\_mask behavioral\_wash\_hands :0.0000 ## Min. :0.0000 :0.0000 Min. Min. 1st Qu.:0.0000 1st Qu.:0.00000 1st Qu.:1.0000 ## Median :1.0000 Median :0.00000 Median :1.0000 Mean :0.7256 Mean :0.06898 Mean :0.8256 ## 3rd Qu.:1.0000 3rd Qu.:0.00000 3rd Qu.:1.0000 ## Max. :1.0000 Max. :1.00000 Max. :1.0000 ## NA's :208 NA's NA's :19 :42 ## behavioral\_large\_gatherings behavioral\_outside\_home behavioral\_touch\_face ## :0.0000 Min. :0.0000 Min. :0.0000 ## 1st Qu.:0.0000 1st Qu.:0.0000 1st Qu.:0.0000 Median :0.0000 Median :0.0000 ## Median :1.0000 ## :0.6773 Mean :0.3586 Mean :0.3373 Mean ## 3rd Qu.:1.0000 3rd Qu.:1.0000 3rd Qu.:1.0000 ## :1.0000 Max. :1.0000 Max. Max. :1.0000 NA's :82 ## doctor\_recc\_h1n1 doctor\_recc\_seasonal chronic\_med\_condition Min. :0.0000 Min. :0.0000 Min. :0.0000 ## 1st Qu.:0.0000 1st Qu.:0.0000 1st Qu.:0.0000 Median :0.0000 Median :0.0000 Median :0.0000 ## Mean :0.2203 Mean :0.3297 Mean :0.2833 ## 3rd Qu.:0.0000 3rd Qu.:1.0000 3rd Qu.:1.0000 ## Max. Max. :1.0000 :1.0000 Max. :1.0000 NA's :2160 NA's :2160 NA's :971 health\_insurance child\_under\_6\_months health\_worker ## :0.0000 ## Min. :0.0000 Min. Min. :0.00 ## 1st Qu.:0.0000 1st Qu.:0.0000 1st Qu.:1.00 ## Median :0.0000 Median :0.0000 Median:1.00 ## Mean :0.0826 Mean :0.1119 Mean :0.88 3rd Qu.:0.0000 3rd Qu.:0.0000 3rd Qu.:1.00

```
##
    Max.
           :1.0000
                          Max.
                                 :1.0000
                                           Max.
                                                   :1.00
##
    NA's
           :820
                          NA's
                                 :804
                                           NA's
                                                   :12274
    opinion h1n1 vacc effective opinion h1n1 risk opinion h1n1 sick from vacc
           :1.000
                                 Min.
                                        :1.000
                                                    Min.
                                                           :1.000
##
##
    1st Qu.:3.000
                                 1st Qu.:1.000
                                                    1st Qu.:1.000
##
    Median :4.000
                                 Median :2.000
                                                    Median :2.000
    Mean :3.851
                                 Mean :2.343
                                                    Mean :2.358
    3rd Qu.:5.000
                                 3rd Qu.:4.000
                                                    3rd Qu.:4.000
##
##
    Max.
           :5.000
                                 Max.
                                         :5.000
                                                    Max.
                                                           :5.000
   NA's
           :391
                                 NA's
                                                    NA's
##
                                         :388
                                                           :395
    opinion_seas_vacc_effective opinion_seas_risk opinion_seas_sick_from_vacc
##
   Min.
           :1.000
                                        :1.000
                                                           :1.000
                                 Min.
                                                    Min.
    1st Qu.:4.000
                                 1st Qu.:2.000
                                                    1st Qu.:1.000
##
##
  Median :4.000
                                 Median :2.000
                                                    Median :2.000
##
   Mean
           :4.026
                                 Mean
                                        :2.719
                                                    Mean
                                                           :2.118
##
    3rd Qu.:5.000
                                 3rd Qu.:4.000
                                                    3rd Qu.:4.000
##
                                         :5.000
    Max.
           :5.000
                                 Max.
                                                    Max.
                                                           :5.000
##
    NA's
           :462
                                 NA's
                                         :514
                                                    NA's
                                                           :537
##
     age_group
                         education
                                                race
                                                                    sex
##
    Length: 26707
                        Length: 26707
                                           Length: 26707
                                                               Length: 26707
                                                               Class :character
##
    Class : character
                        Class : character
                                           Class : character
##
    Mode :character
                        Mode : character
                                           Mode :character
                                                               Mode :character
##
##
##
##
##
    income_poverty
                        marital_status
                                            rent_or_own
                                                                employment_status
                                            Length: 26707
                                                               Length: 26707
##
    Length: 26707
                        Length: 26707
##
    Class : character
                        Class : character
                                            Class : character
                                                                Class : character
    Mode :character
                        Mode :character
                                           Mode :character
                                                               Mode :character
##
##
##
##
##
    hhs_geo_region
                         census msa
                                            household adults household children
    Length: 26707
                        Length: 26707
                                           Min.
                                                   :0.0000
                                                             Min.
                                                                     :0.0000
##
                                            1st Qu.:0.0000
##
    Class : character
                        Class :character
                                                             1st Qu.:0.0000
##
    Mode :character
                        Mode : character
                                           Median :1.0000
                                                             Median: 0.0000
##
                                            Mean
                                                   :0.8865
                                                             Mean
                                                                     :0.5346
##
                                            3rd Qu.:1.0000
                                                             3rd Qu.:1.0000
##
                                                   :3.0000
                                                                     :3.0000
                                                             Max.
                                            NA's
##
                                                   :249
                                                             NA's
                                                                     :249
    employment_industry employment_occupation
##
                                               h1n1 vaccine
                                                                  seasonal vaccine
    Length: 26707
                         Length: 26707
                                                                         :0.0000
##
                                                Min.
                                                       :0.0000
                                                                 Min.
                                                1st Qu.:0.0000
                                                                 1st Qu.:0.0000
    Class : character
                         Class : character
                                                Median :0.0000
##
    Mode :character
                         Mode :character
                                                                 Median :0.0000
##
                                                Mean
                                                       :0.2125
                                                                 Mean
                                                                         :0.4656
##
                                                                 3rd Qu.:1.0000
                                                3rd Qu.:0.0000
##
                                                Max.
                                                       :1.0000
                                                                 Max.
                                                                         :1.0000
##
## 'data.frame':
                    26707 obs. of 38 variables:
   $ respondent_id
                                  : int 0 1 2 3 4 5 6 7 8 9 ...
## $ h1n1_concern
                                  : num 1 3 1 1 2 3 0 1 0 2 ...
```

```
$ h1n1_knowledge
                                : num 0 2 1 1 1 1 0 0 2 1 ...
##
##
  $ behavioral_antiviral_meds : num 0 0 0 0 0 0 0 0 0 0 ...
##
  $ behavioral avoidance
                               : num
                                      0 1 1 1 1 1 0 1 1 1 ...
  $ behavioral_face_mask
                                : num 0000000000...
##
##
   $ behavioral_wash_hands
                                : num
                                      0 1 0 1 1 1 0 1 1 0 ...
##
   $ behavioral large gatherings: num 0 0 0 1 1 0 0 0 1 1 ...
##
   $ behavioral outside home
                                      1 1 0 0 0 0 0 0 1 0 ...
                                : num
##
   $ behavioral_touch_face
                                : num
                                      1 1 0 0 1 1 0 1 1 1 ...
##
   $ doctor_recc_h1n1
                                      0 0 NA 0 0 0 0 1 0 0 ...
                                : num
##
   $ doctor_recc_seasonal
                                : num
                                      0 0 NA 1 0 1 0 0 0 0 ...
   $ chronic_med_condition
                                      0 0 1 1 0 0 0 1 0 1 ...
                                : num
##
   $ child_under_6_months
                                : num
                                      0 0 0 0 0 0 0 0 0 0 ...
##
   $ health_worker
                                : num 0000000000...
##
   $ health_insurance
                                : num
                                      1 1 NA NA NA NA NA 1 NA 1 ...
##
   $ opinion_h1n1_vacc_effective: num  3 5 3 3 5 4 5 4 4 ...
##
   $ opinion_h1n1_risk
                                      1 4 1 3 3 2 1 2 1 2 ...
                                : num
##
   $ opinion_h1n1_sick_from_vacc: num 2 4 1 5 2 1 1 1 1 2 ...
##
   $ opinion_seas_vacc_effective: num
                                      2 4 4 5 3 5 4 4 4 4 ...
##
                                : num 1 2 1 4 1 4 2 2 2 2 ...
   $ opinion_seas_risk
##
   $ opinion_seas_sick_from_vacc: num
                                      2 4 2 1 4 4 1 1 1 2 ...
##
   $ age_group
                                : chr
                                      "55 - 64 Years" "35 - 44 Years" "18 - 34 Years" "65+ Years" ...
                                      "< 12 Years" "12 Years" "College Graduate" "12 Years" ...
##
  $ education
                                : chr
                                       "White" "White" "White" ...
##
   $ race
                                : chr
                                       "Female" "Male" "Female" ...
##
   $ sex
                                : chr
                                      "Below Poverty" "Selow Poverty" "<= $75,000, Above Poverty" "Be
##
   $ income_poverty
                                : chr
##
   $ marital_status
                                : chr
                                       "Not Married" "Not Married" "Not Married" ...
                                       "Own" "Rent" "Own" "Rent" ...
##
   $ rent_or_own
                                : chr
                                      "Not in Labor Force" "Employed" "Employed" "Not in Labor Force"
##
   $ employment_status
                                : chr
                               : chr "oxchjgsf" "bhuqouqj" "qufhixun" "lrircsnp" ...
##
   $ hhs_geo_region
                                       "Non-MSA" "MSA, Not Principle City" "MSA, Not Principle City"
##
   $ census_msa
                               : chr
##
   $ household_adults
                                : num
                                      0 0 2 0 1 2 0 2 1 0 ...
##
   $ household_children
                               : num
                                      0 0 0 0 0 3 0 0 0 0 ...
                                      "" "pxcmvdjn" "rucpziij" "" ...
##
   $ employment_industry
                                : chr
                                       "" "xgwztkwe" "xtkaffoo" "" ...
##
   $ employment_occupation
                                : chr
   $ h1n1 vaccine
                                      0 0 0 0 0 0 0 1 0 0 ...
                                : int
                                      0 1 0 1 0 0 0 1 0 0 ...
  $ seasonal_vaccine
                                : int
```

#### Variables Removed

respondent\_id – unique identifier, ranges from 0 to 26706

hhs\_geo\_region - Respondent's residence using a 10-region geographic classification defined by the U.S. Dept. of Health and Human Services. Values are represented as short random character strings.

employment\_industry - Type of industry respondent is employed in. Values are represented as short random character strings.

**employment\_occupation** - Type of occupation of respondent. Values are represented as short random character strings.

#### Descriptions of the variables

h1n1\_vaccine - Whether respondent received H1N1 flu vaccine.

seasonal\_vaccine - Whether respondent received seasonal flu vaccine.

**age\_group** - Age group of respondent.

education - Self-reported education level.

race - Race of respondent.

 $\mathbf{sex}$  - Sex of respondent.

income\_poverty - Household annual income of respondent with respect to 2008 Census poverty thresholds.

marital status - Marital status of respondent.

rent\_or\_own - Housing situation of respondent.

employment\_status - Employment status of respondent.

 $h1n1\_concern$  - Level of concern about the H1N1 flu. 0 = Not at all concerned; 1 = Not very concerned; 2 = Somewhat concerned; 3 = Very concerned.

h1n1\_knowledge - Level of knowledge about H1N1 flu. 0 = No knowledge; 1 = A little knowledge; 2 = A lot of knowledge.

behavioral wash hands - Has frequently washed hands or used hand sanitizer. (binary)

behavioral\_large\_gatherings - Has reduced time at large gatherings. (binary)

behavioral\_antiviral\_meds - Has taken antiviral medications. (binary)

behavioral\_avoidance - Has avoided close contact with others with flu-like symptoms. (binary)

behavioral\_face\_mask - Has bought a face mask. (binary)

behavioral outside home - Has reduced contact with people outside of own household. (binary)

behavioral\_touch\_face - Has avoided touching eyes, nose, or mouth. (binary)

doctor\_recc\_h1n1 - H1N1 flu vaccine was recommended by doctor. (binary)

doctor recc seasonal - Seasonal flu vaccine was recommended by doctor. (binary)

**chronic\_med\_condition** - Has any of the following chronic medical conditions: asthma or an other lung condition, diabetes, a heart condition, a kidney condition, sickle cell anemia or other anemia, a neurological or neuromuscular condition, a liver condition, or a weakened immune system caused by a chronic illness or by medicines taken for a chronic illness. (binary)

child\_under\_6\_months - Has regular close contact with a child under the age of six months. (binary)

health\_worker - Is a healthcare worker. (binary)

**health** insurance - Has health insurance. (binary)

opinion\_h1n1\_vacc\_effective - Respondent's opinion about H1N1 vaccine effectiveness. 1 = Not at all effective; 2 = Not very effective; 3 = Don't know; 4 = Somewhat effective; 5 = Very effective.

**opinion\_h1n1\_risk** - Respondent's opinion about risk of getting sick with H1N1 flu without vaccine. 1 = Very Low; 2 = Somewhat low; 3 = Don't know; 4 = Somewhat high; 5 = Very high.

opinion\_h1n1\_sick\_from\_vacc - Respondent's worry of getting sick from taking H1N1 vaccine. 1 = Not at all worried; 2 = Not very worried; 3 = Don't know; 4 = Somewhat worried; 5 = Very worried.

opinion\_seas\_vacc\_effective - Respondent's opinion about seasonal flu vaccine effectiveness. 1 = Not at all effective; 2 = Not very effective; 3 = Don't know; 4 = Somewhat effective; 5 = Very effective.

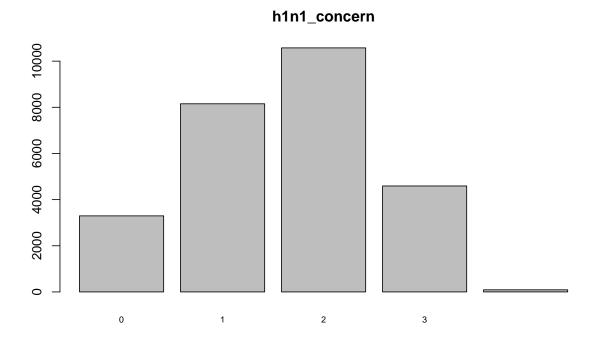
opinion\_seas\_risk - Respondent's opinion about risk of getting sick with seasonal flu without vaccine. 1 = Very Low; 2 = Somewhat low; 3 = Don't know; 4 = Somewhat high; 5 = Very high.

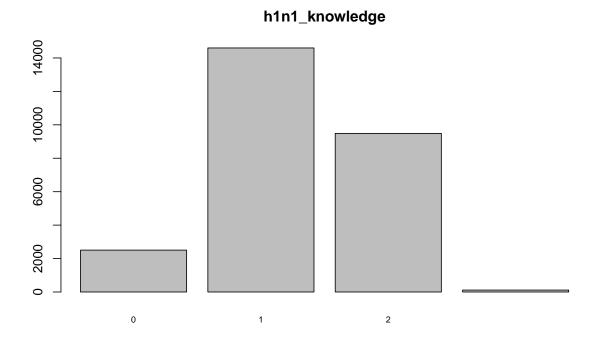
opinion\_seas\_sick\_from\_vacc - Respondent's worry of getting sick from taking seasonal flu vaccine. 1 = Not at all worried; 2 = Not very worried; 3 = Don't know; 4 = Somewhat worried; 5 = Very worried.

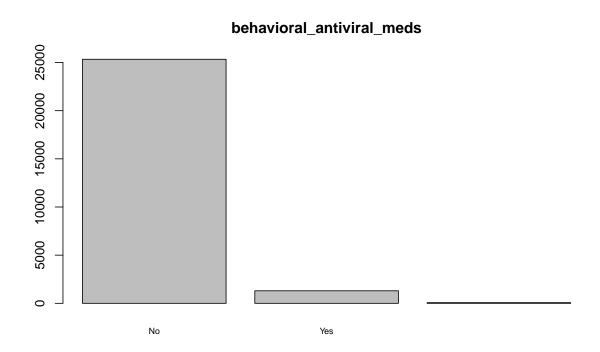
 ${\bf census\_msa}$  - Respondent's residence within metropolitan statistical areas (MSA) as defined by the U.S. Census.

household\_adults - Number of other adults in household, top-coded to 3.

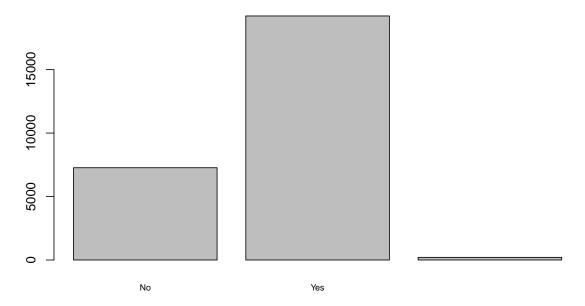
 ${\bf household\_children}$  - Number of children in household, top-coded to 3.



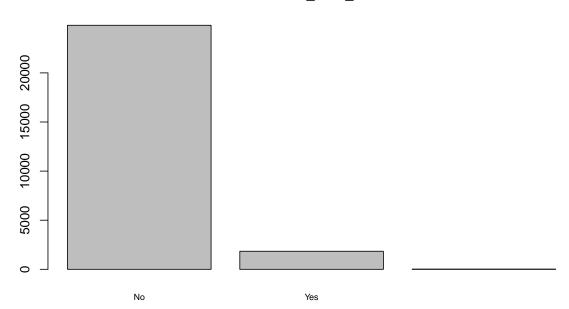




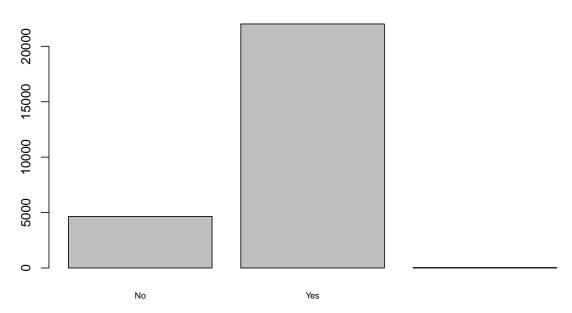




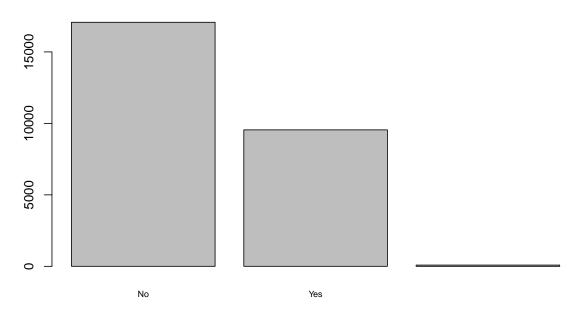
## behavioral\_face\_mask

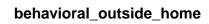


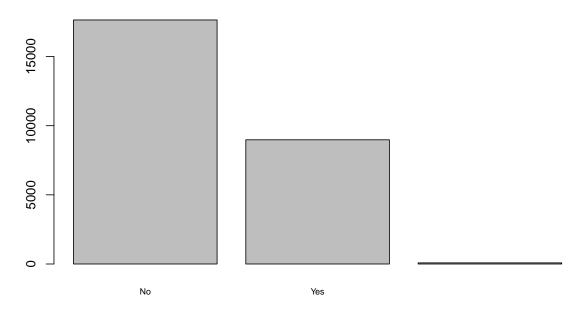




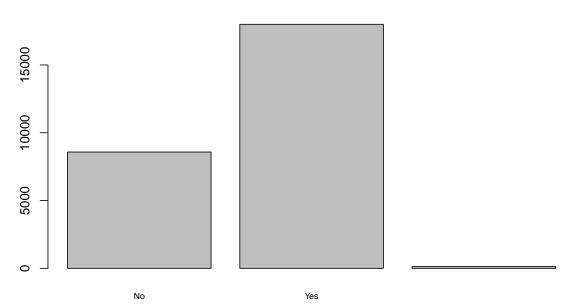
# behavioral\_large\_gatherings



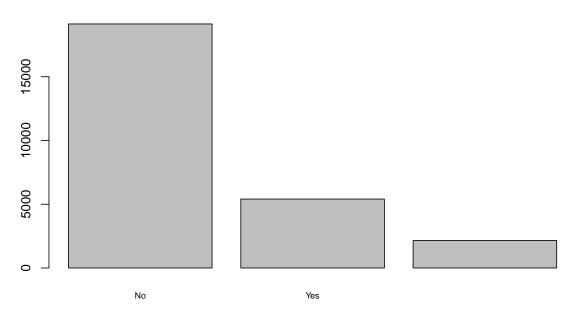




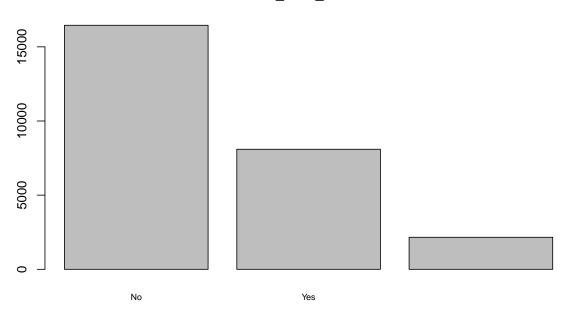
## behavioral\_touch\_face



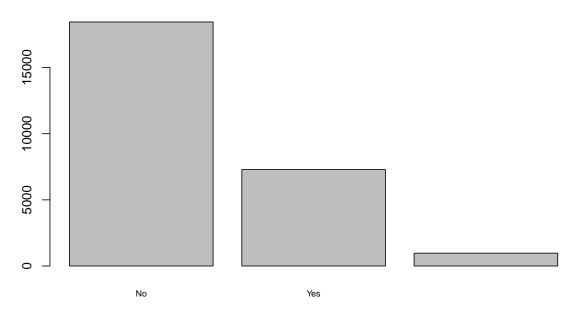




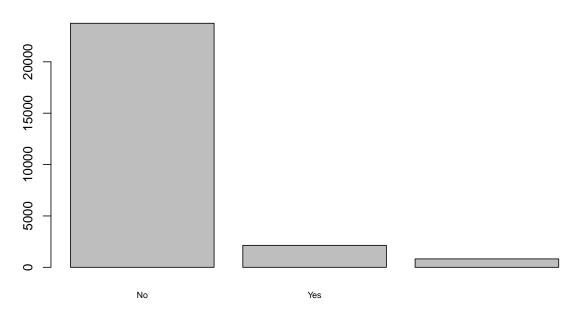
## doctor\_recc\_seasonal

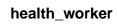


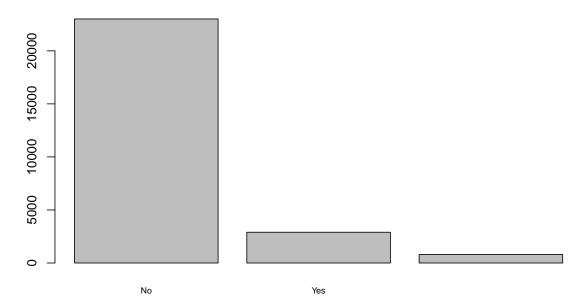




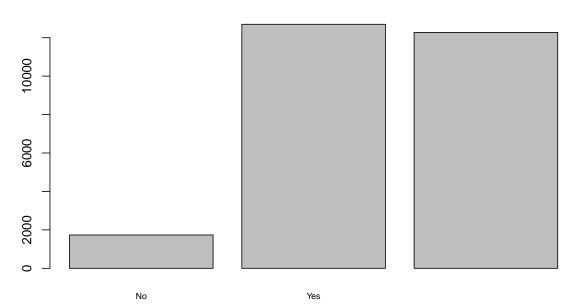
## child\_under\_6\_months



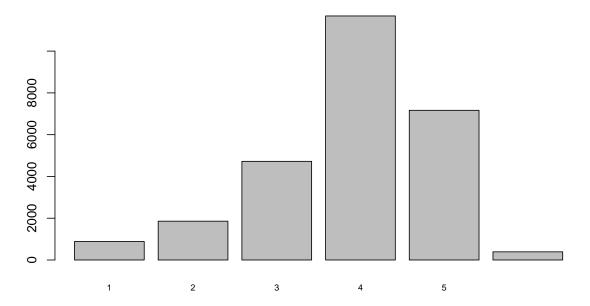




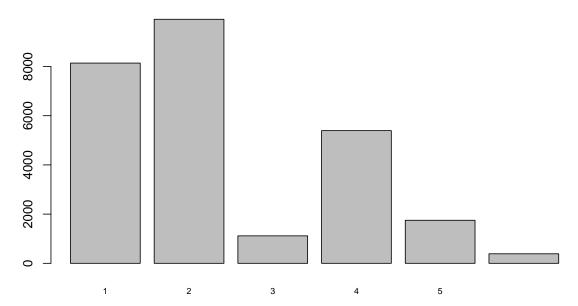
## health\_insurance



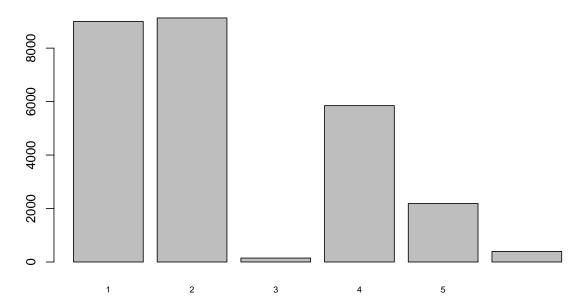
# opinion\_h1n1\_vacc\_effective



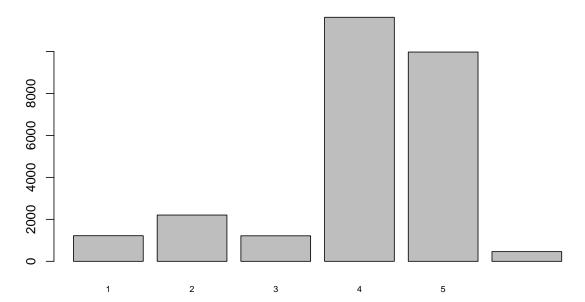
# opinion\_h1n1\_risk



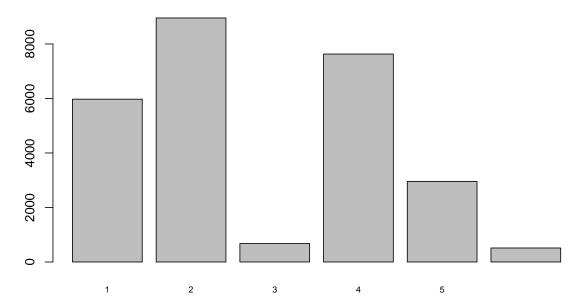
# opinion\_h1n1\_sick\_from\_vacc



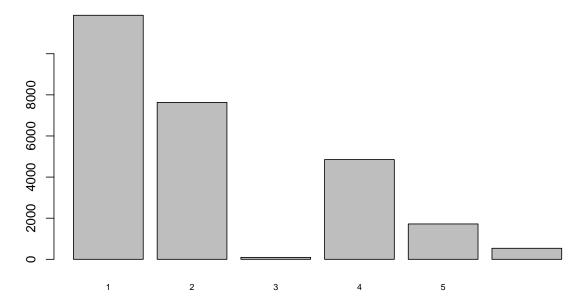
## opinion\_seas\_vacc\_effective



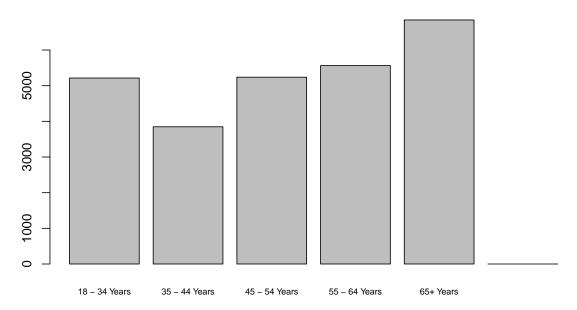


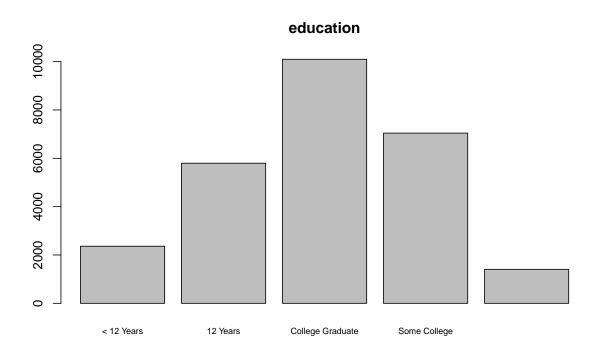


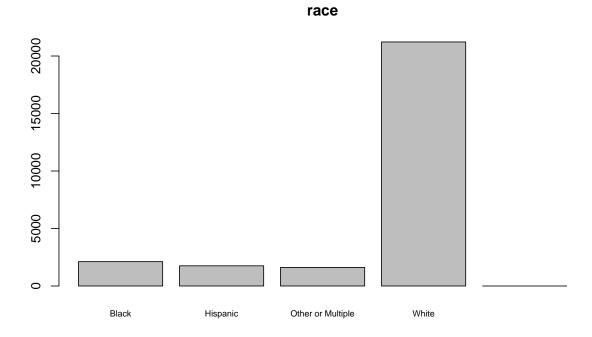
# opinion\_seas\_sick\_from\_vacc

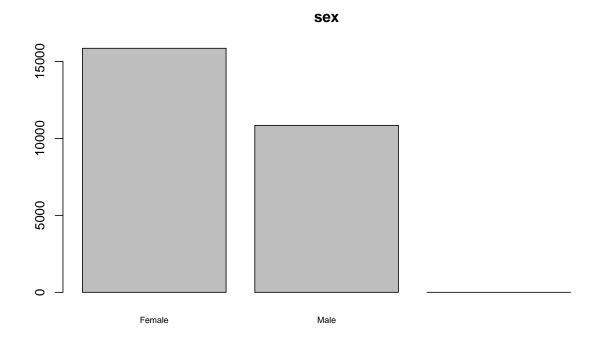




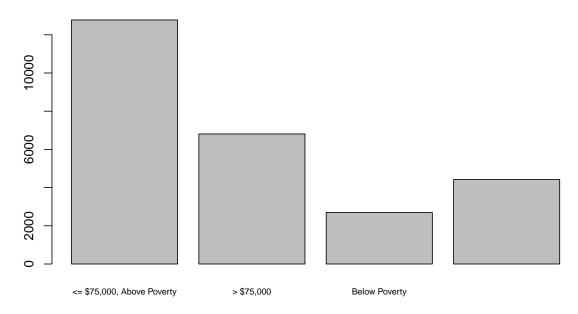




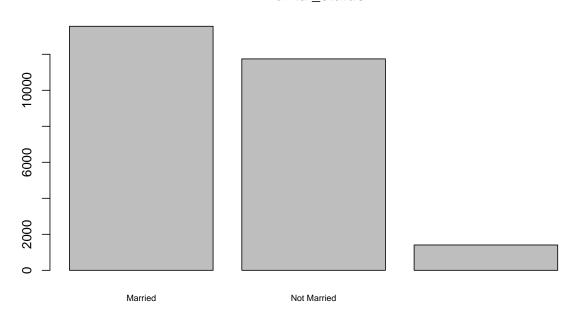


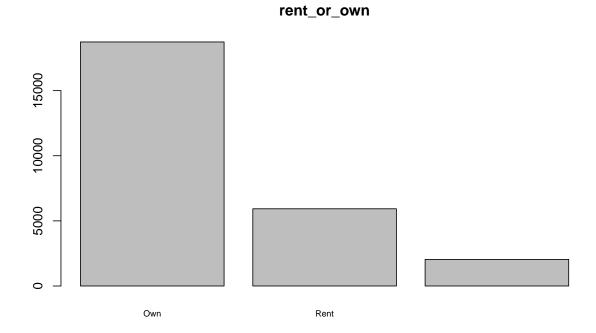


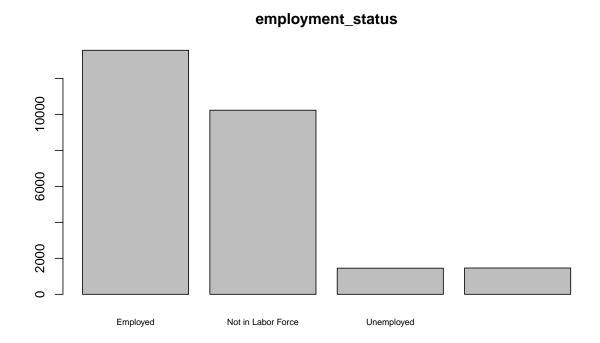




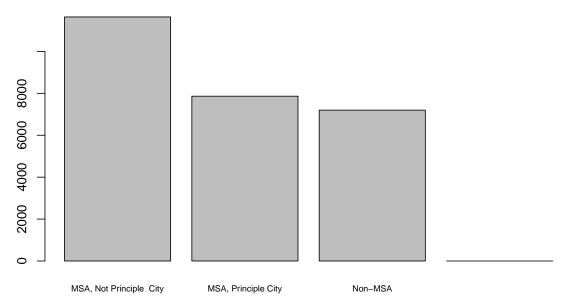
#### marital\_status



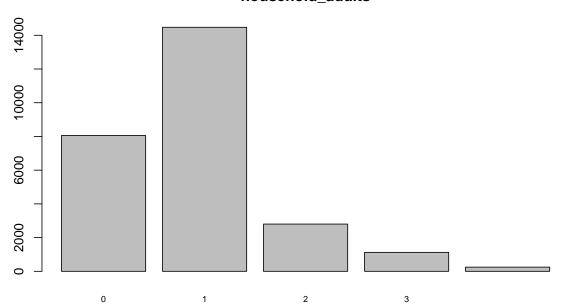




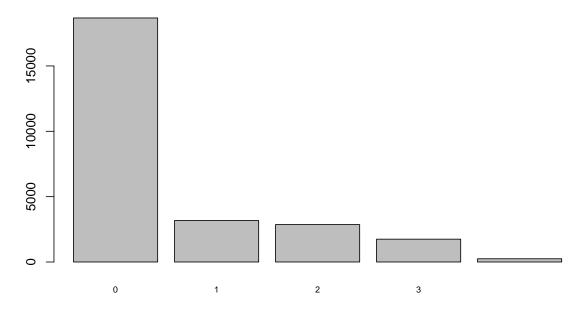




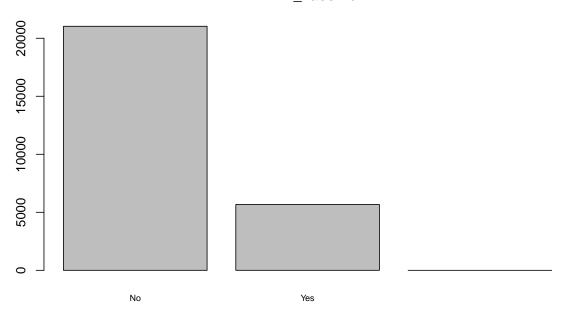
#### household\_adults







# h1n1\_vaccine



# seasonal\_vaccine

