for_presentation

Sara Shao

4/11/2021

```r
library(tidyverse)
```

```
## -- Attaching packages ------------------------------------- tidyverse 1.3.0 --
```

```
## v tibble  3.1.0      v purrr   0.3.4
## v tidyr   1.1.3      v dplyr   1.0.5
## v readr   1.4.0      v forcats 0.5.1
```

```
## -- Conflicts ---------------------------------------- tidyverse_conflicts() --
## x lubridate::as.difftime() masks base::as.difftime()
## x lubridate::date()        masks base::date()
## x dplyr::filter()          masks stats::filter()
## x readr::guess_encoding()  masks rvest::guess_encoding()
## x lubridate::intersect()   masks base::intersect()
## x dplyr::lag()             masks stats::lag()
## x lubridate::setdiff()     masks base::setdiff()
## x lubridate::union()       masks base::union()
```

```r
library(nnet)
library(varhandle)
```

```r
us_19 <- read_csv('~/df_data/US/us_19.csv')
```

```r
#col_names <- colnames(us_19)
#us_19 <- lapply(us_19%>% select(-DEM_AGE), as.factor)
#us_19 <- data.frame(matrix(unlist(us_19), nrow=length(us_19), byrow=TRUE))
#us_19 <- data.frame(t(us_19))
#colnames(us_19) <- col_names
```

```r
set.seed(2021)
us_19_mod <- us_19 %>%
  sample_n(3000) %>%
  mutate(DAST_binary = if_else(DAST_SUM < 3, 0, 1))
```

```r
us_19_mod <- us_19_mod %>%
  select(ends_with("NMUYR"), starts_with("DEM"), TOB_LIFE, DAST_CAT, DAST_binary) %>%
  subset(select = -c(DEM_PREG, DEM_PREG_WK, DEM_STDNT_PROGRAM, DEM_STDNT_UNDER, DEM_VET_SERV, DEM_HEALTH
```

```r
us_19_mod
```

```
## # A tibble: 3,000 x 86
##    BHYD_NMUYR BUP_NMUYR COD_NMUYR DIHY_NMUYR ELU_NMUYR FENT_NMUYR GAB_NMUYR
##    <lgl>          <dbl>     <dbl> <lgl>          <dbl>      <dbl>     <dbl>
## 1 NA                NA        NA NA                NA         NA        NA
## 2 NA                NA        NA NA                NA         NA        NA
```

```
##  3 NA          NA       NA NA          NA       NA        0
##  4 NA          NA       NA NA          NA       NA       NA
##  5 NA          NA       NA NA          NA       NA       NA
##  6 NA          NA        0 NA          NA       NA       NA
##  7 NA          NA        0 NA          NA       NA       NA
##  8 NA          NA       NA NA          NA       NA       NA
##  9 NA          NA       NA NA          NA       NA       NA
## 10 NA          NA       NA NA          NA       NA       NA
## # ... with 2,990 more rows, and 79 more variables: HYD_NMUYR <dbl>,
## #   HYDM_NMUYR <dbl>, KTM_NMUYR <dbl>, METH_NMUYR <dbl>, MORPH_NMUYR <dbl>,
## #   OXY_NMUYR <dbl>, OXYM_NMUYR <dbl>, PREG_NMUYR <dbl>, SUF_NMUYR <dbl>,
## #   TAP_NMUYR <lgl>, TRAM_NMUYR <dbl>, ALP_NMUYR <dbl>, BAC_NMUYR <dbl>,
## #   CHL_NMUYR <dbl>, CLOB_NMUYR <dbl>, CLON_NMUYR <dbl>, CLOR_NMUYR <dbl>,
## #   DIA_NMUYR <dbl>, EST_NMUYR <dbl>, ESZ_NMUYR <dbl>, FLUR_NMUYR <dbl>,
## #   LORA_NMUYR <dbl>, MID_NMUYR <dbl>, OXA_NMUYR <dbl>, QUA_NMUYR <lgl>,
## #   TEM_NMUYR <dbl>, TRI_NMUYR <dbl>, ZAL_NMUYR <dbl>, ZOL_NMUYR <dbl>,
## #   AMPH_NMUYR <dbl>, ATOM_NMUYR <dbl>, MPHEN_NMUYR <dbl>, MOD_NMUYR <dbl>,
## #   CANN_NMUYR <dbl>, DRON_NMUYR <dbl>, NAB_NMUYR <dbl>, ACE_NMUYR <dbl>,
## #   ASP_NMUYR <dbl>, DEX_NMUYR <dbl>, DIPH_NMUYR <dbl>, IBU_NMUYR <dbl>,
## #   LOP_NMUYR <dbl>, NAP_NMUYR <dbl>, OTCOTH_NMUYR <dbl>, PAINREL_NMUYR <dbl>,
## #   SED_NMUYR <dbl>, STIM_NMUYR <dbl>, THC_NMUYR <dbl>, OP_NMUYR <dbl>,
## #   GABA_NMUYR <dbl>, DEM_GENDER <dbl>, DEM_AGE <dbl>, DEM_POSTAL <chr>,
## #   DEM_REGION <dbl>, DEM_INCOME <dbl>, DEM_HOME <dbl>, DEM_GENHEALTH <dbl>,
## #   DEM_LIMIT <dbl>, DEM_HISPANIC <dbl>, DEM_RACE_AIAN <dbl>,
## #   DEM_RACE_ASIAN <dbl>, DEM_RACE_BLACK <dbl>, DEM_RACE_NHPI <dbl>,
## #   DEM_RACE_WHITE <dbl>, DEM_RACE_OTH <dbl>, DEM_MARITAL <dbl>, DEM_EDU <dbl>,
## #   DEM_STDNT <dbl>, DEM_VET <dbl>, DEM_HEALTH <dbl>, DEM_EMPLOY <dbl>,
## #   DEM_INSUR <dbl>, DEM_HOSPSTAY <dbl>, DEM_ZIP <dbl>, DEM_STATE <chr>,
## #   DEM_AGE10 <dbl>, TOB_LIFE <dbl>, DAST_CAT <dbl>, DAST_binary <dbl>
```

```r
us_19_mod <- us_19_mod %>%
  mutate(DEM_GENDER = factor(DEM_GENDER),
         DEM_REGION = factor(DEM_REGION),
         DEM_INCOME = factor(DEM_INCOME),
         TOB_LIFE = factor(TOB_LIFE),
         DAST_binary = factor(DAST_binary),
         PAINREL_NMUYR = factor(PAINREL_NMUYR),
         STIM_NMUYR = factor(STIM_NMUYR),
         SED_NMUYR = factor(SED_NMUYR),
         THC_NMUYR = factor(THC_NMUYR),
         OP_NMUYR = factor(OP_NMUYR),
         GAB_NMUYR = factor(GAB_NMUYR))
glimpse(us_19_mod)
```

```
## Rows: 3,000
## Columns: 86
## $ BHYD_NMUYR    <lgl> NA, NA, NA, NA, NA, NA, NA, NA, NA, NA, NA, NA, NA, NA,~
## $ BUP_NMUYR     <dbl> NA, NA, NA, NA, NA, NA, NA, NA, NA, NA, NA, NA, NA, NA,~
## $ COD_NMUYR     <dbl> NA, NA, NA, NA, NA, 0, 0, NA, NA, NA, NA, NA, NA, NA, 0~
## $ DIHY_NMUYR    <lgl> NA, NA, NA, NA, NA, NA, NA, NA, NA, NA, NA, NA, NA, NA,~
## $ ELU_NMUYR     <dbl> NA, NA, NA, NA, NA, NA, NA, NA, NA, NA, NA, NA, NA, NA,~
## $ FENT_NMUYR    <dbl> NA, NA, NA, NA, NA, NA, NA, NA, NA, NA, NA, NA, NA, NA,~
## $ GAB_NMUYR     <fct> NA, NA, 0, NA, NA, NA, NA, NA, NA, NA, 0, NA, NA, NA, N~
## $ HYD_NMUYR     <dbl> NA, NA, NA, NA, NA, 1, 0, NA, NA, NA, NA, NA, NA, NA, N~
## $ HYDM_NMUYR    <dbl> NA, NA, NA, NA, NA, NA, NA, NA, NA, NA, NA, NA, NA, NA,~
```

```
## $ KTM_NMUYR      <dbl> NA, NA, NA, NA, NA, NA, NA, NA, NA, NA, NA, NA, NA, NA,~
## $ METH_NMUYR     <dbl> NA, NA, NA, NA, NA, 0, NA, NA, NA, NA, NA, NA, NA, NA, ~
## $ MORPH_NMUYR    <dbl> NA, NA, NA, NA, NA, 0, 0, NA, NA, NA, NA, NA, NA, NA, N~
## $ OXY_NMUYR      <dbl> NA, NA, NA, NA, NA, 1, NA, NA, NA, NA, NA, NA, NA, NA, ~
## $ OXYM_NMUYR     <dbl> NA, NA, NA, NA, NA, NA, NA, NA, NA, NA, NA, NA, NA, NA,~
## $ PREG_NMUYR     <dbl> NA, NA, NA, NA, NA, NA, NA, NA, NA, NA, NA, NA, NA, NA,~
## $ SUF_NMUYR      <dbl> NA, NA, NA, NA, NA, NA, NA, NA, NA, NA, NA, NA, NA, NA,~
## $ TAP_NMUYR      <lgl> NA, NA, NA, NA, NA, NA, NA, NA, NA, NA, NA, NA, NA, NA,~
## $ TRAM_NMUYR     <dbl> NA, NA, NA, NA, NA, NA, 0, NA, NA, NA, NA, NA, NA, NA, ~
## $ ALP_NMUYR      <dbl> NA, NA, NA, NA, NA, NA, NA, NA, NA, NA, NA, NA, NA, NA,~
## $ BAC_NMUYR      <dbl> NA, NA, NA, NA, NA, NA, NA, NA, NA, NA, NA, NA, NA, NA,~
## $ CHL_NMUYR      <dbl> NA, NA, NA, NA, NA, NA, NA, NA, NA, NA, NA, NA, NA, NA,~
## $ CLOB_NMUYR     <dbl> NA, NA, NA, NA, NA, NA, NA, NA, NA, NA, NA, NA, NA, NA,~
## $ CLON_NMUYR     <dbl> NA, NA, NA, NA, NA, NA, NA, NA, NA, NA, NA, NA, NA, NA,~
## $ CLOR_NMUYR     <dbl> NA, NA, NA, NA, NA, NA, NA, NA, NA, NA, NA, NA, NA, NA,~
## $ DIA_NMUYR      <dbl> NA, NA, NA, NA, NA, NA, NA, NA, NA, NA, NA, NA, NA, NA,~
## $ EST_NMUYR      <dbl> NA, NA, NA, NA, NA, NA, NA, NA, NA, NA, NA, NA, NA, NA,~
## $ ESZ_NMUYR      <dbl> NA, NA, NA, NA, NA, NA, NA, NA, NA, NA, NA, NA, NA, NA,~
## $ FLUR_NMUYR     <dbl> NA, NA, NA, NA, NA, NA, NA, NA, NA, NA, NA, NA, NA, NA,~
## $ LORA_NMUYR     <dbl> NA, NA, NA, NA, NA, NA, NA, NA, 0, NA, NA, NA, NA, NA, ~
## $ MID_NMUYR      <dbl> NA, NA, NA, NA, NA, NA, NA, NA, NA, NA, NA, NA, NA, NA,~
## $ OXA_NMUYR      <dbl> NA, NA, NA, NA, NA, NA, NA, NA, NA, NA, NA, NA, NA, NA,~
## $ QUA_NMUYR      <lgl> NA, NA, NA, NA, NA, NA, NA, NA, NA, NA, NA, NA, NA, NA,~
## $ TEM_NMUYR      <dbl> NA, NA, NA, NA, NA, NA, NA, NA, NA, NA, NA, NA, NA, NA,~
## $ TRI_NMUYR      <dbl> NA, NA, NA, NA, NA, NA, NA, NA, NA, NA, NA, NA, NA, NA,~
## $ ZAL_NMUYR      <dbl> NA, NA, NA, NA, NA, NA, NA, NA, NA, NA, NA, NA, NA, NA,~
## $ ZOL_NMUYR      <dbl> NA, NA, NA, NA, NA, NA, NA, NA, NA, NA, NA, NA, NA, NA,~
## $ AMPH_NMUYR     <dbl> NA, NA, NA, NA, NA, NA, NA, NA, NA, NA, NA, NA, NA, NA,~
## $ ATOM_NMUYR     <dbl> NA, NA, NA, NA, NA, NA, NA, NA, NA, NA, NA, NA, NA, NA,~
## $ MPHEN_NMUYR    <dbl> NA, 0, NA, NA, NA, NA, NA, NA, NA, NA, NA, NA, NA, NA, ~
## $ MOD_NMUYR      <dbl> NA, NA, NA, NA, NA, NA, NA, NA, NA, NA, NA, NA, NA, NA,~
## $ CANN_NMUYR     <dbl> NA, NA, NA, NA, NA, NA, NA, NA, NA, NA, NA, NA, NA, NA,~
## $ DRON_NMUYR     <dbl> NA, NA, NA, NA, NA, NA, NA, NA, NA, NA, NA, NA, NA, NA,~
## $ NAB_NMUYR      <dbl> NA, NA, NA, NA, NA, NA, NA, NA, NA, NA, NA, NA, NA, NA,~
## $ ACE_NMUYR      <dbl> NA, 0, NA, 0, 0, 0, 0, 0, 0, NA, 0, 0, 0, 0, 1, NA, 0, ~
## $ ASP_NMUYR      <dbl> NA, 0, 1, NA, 0, 0, 0, NA, 0, 0, 0, NA, NA, NA, NA, NA,~
## $ DEX_NMUYR      <dbl> NA, 0, NA, 0, NA, NA, NA, NA, NA, NA, NA, NA, NA, NA, N~
## $ DIPH_NMUYR     <dbl> NA, NA, 1, 0, NA, NA, NA, NA, NA, NA, NA, 0, 0, NA, NA,~
## $ IBU_NMUYR      <dbl> NA, 0, 1, 0, 0, 0, 0, 0, 0, NA, 0, NA, NA, 0, NA, 0, NA~
## $ LOP_NMUYR      <dbl> NA, NA, NA, NA, NA, NA, NA, NA, NA, 0, NA, NA, NA, NA, ~
## $ NAP_NMUYR      <dbl> NA, 0, NA, 0, 0, 0, NA, NA, 0, 0, 0, NA, NA, NA, NA, 0,~
## $ OTCOTH_NMUYR   <dbl> NA, NA, 1, NA, NA, NA, NA, NA, NA, NA, NA, 0, 0, NA, NA~
## $ PAINREL_NMUYR  <fct> 0, 0, 0, 0, 0, 1, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0~
## $ SED_NMUYR      <fct> 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0~
## $ STIM_NMUYR     <fct> 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0~
## $ THC_NMUYR      <fct> 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0~
## $ OP_NMUYR       <fct> 0, 0, 0, 0, 0, 1, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0~
## $ GABA_NMUYR     <dbl> 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0~
## $ DEM_GENDER     <fct> 1, 1, 2, 2, 1, 1, 1, 1, 2, 1, 1, 2, 2, 2, 2, 2, 1, 2, 2~
## $ DEM_AGE        <dbl> 38, 57, 40, 54, 35, 60, 21, 29, 56, 66, 79, 58, 55, 42,~
## $ DEM_POSTAL     <chr> "133", "806", "930", "194", "040", "551", "748", "330",~
## $ DEM_REGION     <fct> 1, 4, 4, 1, 1, 2, 3, 3, 3, 3, 3, 3, 3, 3, 3, 1, 1, 4, 4~
## $ DEM_INCOME     <fct> 4, 2, 4, 4, 4, 4, 2, 1, 1, 2, 2, 3, 1, 5, 2, 3, 3, 5, 3~
## $ DEM_HOME       <dbl> 6, 1, 5, 1, 2, 3, 2, 3, 1, 1, 4, 2, 2, 4, 4, 1, 2, 2, 2~
```

```
## $ DEM_GENHEALTH  <dbl> 3, 3, 4, 4, 3, 2, 3, 4, 4, 3, 3, 5, 1, 4, 2, 4, 4, 2, 5~
## $ DEM_LIMIT      <dbl> 0, 1, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 1, 0, 1, 0, 0, 1, 0~
## $ DEM_HISPANIC   <dbl> 0, 0, 0, 0, 0, 0, 0, 1, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0~
## $ DEM_RACE_AIAN  <dbl> 0, 0, 0, 0, 0, 0, 0, 0, 1, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0~
## $ DEM_RACE_ASIAN <dbl> 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0~
## $ DEM_RACE_BLACK <dbl> 0, 0, 0, 1, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0~
## $ DEM_RACE_NHPI  <dbl> 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0~
## $ DEM_RACE_WHITE <dbl> 1, 1, 1, 0, 1, 1, 1, 1, 1, 1, 1, 1, 1, 1, 1, 1, 1, 1, 1~
## $ DEM_RACE_OTH   <dbl> 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0~
## $ DEM_MARITAL    <dbl> 4, 3, 1, 5, 5, 1, 5, 1, 2, 5, 1, 1, 1, 1, 5, 2, 1, 1, 1~
## $ DEM_EDU        <dbl> 6, 8, 3, 6, 3, 6, 2, 3, 5, 6, 2, 3, 2, 6, 2, 3, 8, 6, 7~
## $ DEM_STDNT      <dbl> 0, 0, 0, 0, 0, 0, 1, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0~
## $ DEM_VET        <dbl> 0, 0, 0, 0, 0, 0, 0, 0, 1, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0~
## $ DEM_HEALTH     <dbl> 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 1, 0~
## $ DEM_EMPLOY     <dbl> 0, 1, 0, 1, 1, 0, 0, 0, 1, 1, 0, 1, 0, 1, 0, 0, 1, 1, 1~
## $ DEM_INSUR      <dbl> 0, 1, 0, 1, 0, 1, 1, 0, 1, 1, 1, 1, 0, 1, 1, 1, 1, 1, 1~
## $ DEM_HOSPSTAY   <dbl> 0, 0, 0, 0, 0, 1, 1, 0, 0, 0, 0, 1, 0, 1, 0, 0, 0, 0, 0~
## $ DEM_ZIP        <dbl> 133, 806, 930, 194, 40, 551, 748, 330, 723, 731, 224, 3~
## $ DEM_STATE      <chr> "NY", "CO", "CA", "PA", "ME", "MN", "OK", "FL", "AR", "~
## $ DEM_AGE10      <dbl> 3, 5, 3, 4, 3, 5, 1, 2, 5, 6, 6, 5, 5, 3, 6, 6, 5, 4, 3~
## $ TOB_LIFE       <fct> 3, 3, 1, 3, 3, 3, 3, 3, 1, 3, 3, 3, 3, 4, 3, 3, 3, 3, 3~
## $ DAST_CAT       <dbl> 2, 2, 2, 1, 2, 4, 2, 1, 1, 1, 2, 2, 1, 1, 1, 1, 1, 1, 1~
## $ DAST_binary    <fct> 0, 0, 0, 0, 0, 1, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0~
```

```
binary_model <- glm(DAST_binary ~ THC_NMUYR + OP_NMUYR + GABA_NMUYR + PAINREL_NMUYR + STIM_NMUYR + SED_
```

```
tidy(binary_model) %>%
  kable(digits = 3)
```

term	estimate	std.error	statistic	p.value
(Intercept)	-0.354	0.429	-0.826	0.409
THC_NMUYR1	-0.221	0.465	-0.475	0.635
OP_NMUYR1	-0.133	0.746	-0.178	0.859
GABA_NMUYR	-0.444	0.516	-0.859	0.390
PAINREL_NMUYR1	1.097	0.749	1.466	0.143
STIM_NMUYR1	0.903	0.370	2.439	0.015
SED_NMUYR1	1.267	0.297	4.270	0.000
DEM_GENDER2	-0.593	0.193	-3.072	0.002
DEM_AGE	-0.034	0.006	-5.313	0.000
DEM_REGION2	-0.057	0.328	-0.173	0.863
DEM_REGION3	0.221	0.270	0.819	0.413
DEM_REGION4	0.207	0.295	0.702	0.483
DEM_INCOME2	-0.252	0.255	-0.988	0.323
DEM_INCOME3	-0.184	0.277	-0.663	0.507
DEM_INCOME4	-1.103	0.356	-3.096	0.002
DEM_INCOME5	-0.636	0.319	-1.997	0.046
TOB_LIFE2	-0.038	0.257	-0.146	0.884
TOB_LIFE3	-1.436	0.221	-6.507	0.000
TOB_LIFE4	-1.585	0.617	-2.570	0.010

```
int_only_binary_model <- glm(DAST_binary ~ 1, data = us_19_mod, family = binomial)
```

```
final_binary_model <- step(binary_model, scope = formula(int_only_binary_model), direction = "backward")
```

```
## Start:  AIC=936.35
## DAST_binary ~ THC_NMUYR + OP_NMUYR + GABA_NMUYR + PAINREL_NMUYR +
##     STIM_NMUYR + SED_NMUYR + DEM_GENDER + DEM_AGE + DEM_REGION +
##     DEM_INCOME + TOB_LIFE
##
##                 Df Deviance    AIC
## - DEM_REGION     3   899.91 931.91
## - OP_NMUYR       1   898.39 934.39
## - THC_NMUYR      1   898.58 934.58
## - GABA_NMUYR     1   899.11 935.11
## - PAINREL_NMUYR  1   900.33 936.33
## <none>               898.35 936.35
## - STIM_NMUYR     1   904.08 940.08
## - DEM_INCOME     4   911.32 941.32
## - DEM_GENDER     1   907.99 943.99
## - SED_NMUYR      1   915.53 951.53
## - DEM_AGE        1   927.99 963.99
## - TOB_LIFE       3   952.29 984.29
##
## Step:  AIC=931.91
## DAST_binary ~ THC_NMUYR + OP_NMUYR + GABA_NMUYR + PAINREL_NMUYR +
##     STIM_NMUYR + SED_NMUYR + DEM_GENDER + DEM_AGE + DEM_INCOME +
##     TOB_LIFE
##
##                 Df Deviance    AIC
## - OP_NMUYR       1   899.96 929.96
## - THC_NMUYR      1   900.16 930.16
## - GABA_NMUYR     1   900.86 930.86
## <none>               899.91 931.91
## - PAINREL_NMUYR  1   902.07 932.07
## - STIM_NMUYR     1   905.76 935.76
## - DEM_INCOME     4   913.12 937.12
## - DEM_GENDER     1   909.46 939.46
## - SED_NMUYR      1   917.01 947.01
## - DEM_AGE        1   929.79 959.79
## - TOB_LIFE       3   954.61 980.61
##
## Step:  AIC=929.96
## DAST_binary ~ THC_NMUYR + GABA_NMUYR + PAINREL_NMUYR + STIM_NMUYR +
##     SED_NMUYR + DEM_GENDER + DEM_AGE + DEM_INCOME + TOB_LIFE
##
##                 Df Deviance    AIC
## - THC_NMUYR      1   900.21 928.21
## - GABA_NMUYR     1   900.86 928.86
## <none>               899.96 929.96
## - STIM_NMUYR     1   905.82 933.82
## - DEM_INCOME     4   913.21 935.21
## - DEM_GENDER     1   909.52 937.52
## - PAINREL_NMUYR  1   912.14 940.14
## - SED_NMUYR      1   917.09 945.09
## - DEM_AGE        1   929.94 957.94
## - TOB_LIFE       3   954.78 978.78
##
## Step:  AIC=928.21
```

```
## DAST_binary ~ GABA_NMUYR + PAINREL_NMUYR + STIM_NMUYR + SED_NMUYR +
##      DEM_GENDER + DEM_AGE + DEM_INCOME + TOB_LIFE
##
##                 Df Deviance    AIC
## - GABA_NMUYR     1   901.10 927.10
## <none>               900.21 928.21
## - STIM_NMUYR     1   905.84 931.84
## - DEM_INCOME     4   913.47 933.47
## - DEM_GENDER     1   909.58 935.58
## - PAINREL_NMUYR  1   912.15 938.15
## - SED_NMUYR      1   917.10 943.10
## - DEM_AGE        1   929.94 955.94
## - TOB_LIFE       3   954.83 976.83
##
## Step:  AIC=927.1
## DAST_binary ~ PAINREL_NMUYR + STIM_NMUYR + SED_NMUYR + DEM_GENDER +
##      DEM_AGE + DEM_INCOME + TOB_LIFE
##
##                 Df Deviance    AIC
## <none>               901.10 927.10
## - STIM_NMUYR     1   906.89 930.89
## - DEM_INCOME     4   914.55 932.55
## - DEM_GENDER     1   910.56 934.56
## - PAINREL_NMUYR  1   912.17 936.17
## - SED_NMUYR      1   917.14 941.14
## - DEM_AGE        1   930.82 954.82
## - TOB_LIFE       3   955.30 975.30
```

```r
tidy(final_binary_model, conf.int = TRUE) %>%
  kable(digits = 3)
```

term	estimate	std.error	statistic	p.value	conf.low	conf.high
(Intercept)	-0.245	0.374	-0.657	0.511	-0.986	0.481
PAINREL_NMUYR1	0.920	0.266	3.458	0.001	0.387	1.431
STIM_NMUYR1	0.881	0.359	2.451	0.014	0.166	1.578
SED_NMUYR1	1.188	0.289	4.118	0.000	0.616	1.749
DEM_GENDER2	-0.585	0.192	-3.043	0.002	-0.966	-0.211
DEM_AGE	-0.034	0.006	-5.319	0.000	-0.047	-0.022
DEM_INCOME2	-0.233	0.254	-0.915	0.360	-0.731	0.269
DEM_INCOME3	-0.173	0.276	-0.627	0.530	-0.719	0.367
DEM_INCOME4	-1.112	0.356	-3.124	0.002	-1.841	-0.437
DEM_INCOME5	-0.638	0.319	-2.001	0.045	-1.281	-0.024
TOB_LIFE2	-0.023	0.257	-0.088	0.930	-0.534	0.475
TOB_LIFE3	-1.429	0.220	-6.496	0.000	-1.862	-0.997
TOB_LIFE4	-1.592	0.616	-2.585	0.010	-3.035	-0.537