Data Mining Based on Nhanse

吴沛豪

目录

```r
# set chunk options
knitr::opts_chunk$set(echo = TRUE,
                      fig.align = "center",
                      message = FALSE,
                      warning = FALSE)
rm(list = ls())
cat("\014") # Clear Workspace and Console
```

```
library(tidyverse)
```

```
## -- Attaching packages --------------------------------------- tidyverse 1.3.2 --
## v ggplot2 3.4.1     v purrr   1.0.1
## v tibble  3.1.8     v dplyr   1.1.0
## v tidyr   1.3.0     v stringr 1.5.0
## v readr   2.1.4     v forcats 1.0.0
## -- Conflicts ------------------------------------------ tidyverse_conflicts() --
## x dplyr::filter() masks stats::filter()
## x dplyr::lag()    masks stats::lag()
```

```
library(survey)
```

```
## 载入需要的程辑包：grid
## 载入需要的程辑包：Matrix
##
## 载入程辑包：'Matrix'
##
## The following objects are masked from 'package:tidyr':
##
##     expand, pack, unpack
##
## 载入需要的程辑包：survival
##
## 载入程辑包：'survey'
##
## The following object is masked from 'package:graphics':
##
##     dotchart
```

```
library(foreign)
library(nhanesA)
```

1 DEMO 数据

1.0.1 *Demographic*

```
nhanesTables(data_group = 'DEMO',year = 2017) %>%
  knitr::kable()
```

Data.File.Name	Data.File.Description
DEMO_J	Demographic Variables and Sample Weights

```
#demo_data <- nhanes('DEMO_J')
#write.csv(demo_data,'demo_data.csv')
demo_data <- read.csv('demo_data.csv')[-1]
demo_data %>%
  head(1)
```

```
##     SEQN SDDSRVYR RIDSTATR RIAGENDR RIDAGEYR RIDAGEMN RIDRETH1 RIDRETH3 RIDEXMON
## 1 93703       10        2        2        2       NA        5        6        2
##   RIDEXAGM DMQMILIZ DMQADFC DMDBORN4 DMDCITZN DMDYRSUS DMDEDUC3 DMDEDUC2
## 1       27       NA      NA        1        1       NA       NA       NA
##   DMDMARTL RIDEXPRG SIALANG SIAPROXY SIAINTRP FIALANG FIAPROXY FIAINTRP MIALANG
## 1       NA       NA       1        1        2       1        2        2      NA
##   MIAPROXY MIAINTRP AIALANGA DMDHHSIZ DMDFMSIZ DMDHHSZA DMDHHSZB DMDHHSZE
## 1       NA       NA       NA        5        5        3        0        0
##   DMDHRGND DMDHRAGZ DMDHREDZ DMDHRMAZ DMDHSEDZ WTINT2YR WTMEC2YR SDMVPSU
## 1        1        2        3        1        3 9246.492 8539.731        2
##   SDMVSTRA INDHHIN2 INDFMIN2 INDFMPIR
## 1      145       15       15        5
```

2 DIETARY 数据

```
nhanesTables(data_group = 'DIETARY',year = 2017) %>%
  knitr::kable()
```

Data.File.Name	Data.File.Description
DR1TOT_J	Dietary Interview - Total Nutrient Intakes, First Day
DR2TOT_J	Dietary Interview - Total Nutrient Intakes, Second Day
DR1IFF_J	Dietary Interview - Individual Foods, First Day
DR2IFF_J	Dietary Interview - Individual Foods, Second Day
DS1IDS_J	Dietary Supplement Use 24-Hour - Individual Dietary Supplements, First Day
DSQTOT_J	Dietary Supplement Use 30-Day - Total Dietary Supplements
DS2IDS_J	Dietary Supplement Use 24-Hour - Individual Dietary Supplements, Second Day
DS1TOT_J	Dietary Supplement Use 24-Hour - Total Dietary Supplements, First Day
DS2TOT_J	Dietary Supplement Use 24-Hour - Total Dietary Supplements, Second Day
DSQIDS_J	Dietary Supplement Use 30-Day - Individual Dietary Supplements

2.0.1 *Dietary Interview - Total Nutrient Intakes, First Day*

```
#DR1TOT_J <- nhanes('DR1TOT_J')
#write.csv(DR1TOT_J,'DR1TOT_J.csv')
DR1TOT <- read.csv('DR1TOT_J.csv')[-1]
DR1TOT %>%
  head(1)
```

```
##    SEQN WTDRD1 WTDR2D DR1DRSTZ DR1EXMER DRABF DRDINT DR1DBIH DR1DAY DR1LANG
```

```
## 1 93703       0      NA       5      NA     NA     NA     NA     NA     NA
##    DR1MRESP DR1HELP DBQ095Z DBD100 DRQSPREP DR1STY DR1SKY DRQSDIET DRQSDT1
## 1      NA      NA      NA      NA       NA     NA     NA       NA      NA
##    DRQSDT2 DRQSDT3 DRQSDT4 DRQSDT5 DRQSDT6 DRQSDT7 DRQSDT8 DRQSDT9 DRQSDT10
## 1      NA      NA      NA      NA      NA      NA      NA      NA      NA
##    DRQSDT11 DRQSDT12 DRQSDT91 DR1TNUMF DR1TKCAL DR1TPROT DR1TCARB DR1TSUGR
## 1      NA      NA      NA      NA      NA      NA      NA      NA
##    DR1TFIBE DR1TTFAT DR1TSFAT DR1TMFAT DR1TPFAT DR1TCHOL DR1TATOC DR1TATOA
## 1      NA      NA      NA      NA      NA      NA      NA      NA
##    DR1TRET DR1TVARA DR1TACAR DR1TBCAR DR1TCRYP DR1TLYCO DR1TLZ DR1TVB1 DR1TVB2
## 1      NA      NA      NA      NA      NA      NA      NA      NA      NA
##    DR1TNIAC DR1TVB6 DR1TFOLA DR1TFA DR1TFF DR1TFDFE DR1TCHL DR1TVB12 DR1TB12A
## 1      NA      NA      NA      NA      NA      NA      NA      NA      NA
##    DR1TVC DR1TVD DR1TVK DR1TCALC DR1TPHOS DR1TMAGN DR1TIRON DR1TZINC DR1TCOPP
## 1      NA      NA      NA      NA      NA      NA      NA      NA      NA
##    DR1TSODI DR1TPOTA DR1TSELE DR1TCAFF DR1TTHEO DR1TALCO DR1TMOIS DR1TS040
## 1      NA      NA      NA      NA      NA      NA      NA      NA
##    DR1TS060 DR1TS080 DR1TS100 DR1TS120 DR1TS140 DR1TS160 DR1TS180 DR1TM161
## 1      NA      NA      NA      NA      NA      NA      NA      NA
##    DR1TM181 DR1TM201 DR1TM221 DR1TP182 DR1TP183 DR1TP184 DR1TP204 DR1TP205
## 1      NA      NA      NA      NA      NA      NA      NA      NA
##    DR1TP225 DR1TP226 DR1_300 DR1_320Z DR1_330Z DR1BWATZ DR1TWSZ DRD340 DRD350A
## 1      NA      NA      NA      NA      NA      NA      NA      NA      NA
##    DRD350AQ DRD350B DRD350BQ DRD350C DRD350CQ DRD350D DRD350DQ DRD350E DRD350EQ
## 1      NA      NA      NA      NA      NA      NA      NA      NA      NA
##    DRD350F DRD350FQ DRD350G DRD350GQ DRD350H DRD350HQ DRD350I DRD350IQ DRD350J
## 1      NA      NA      NA      NA      NA      NA      NA      NA      NA
##    DRD350JQ DRD350K DRD360 DRD370A DRD370AQ DRD370B DRD370BQ DRD370C DRD370CQ
## 1      NA      NA      NA      NA      NA      NA      NA      NA      NA
##    DRD370D DRD370DQ DRD370E DRD370EQ DRD370F DRD370FQ DRD370G DRD370GQ DRD370H
## 1      NA      NA      NA      NA      NA      NA      NA      NA      NA
##    DRD370HQ DRD370I DRD370IQ DRD370J DRD370JQ DRD370K DRD370KQ DRD370L DRD370LQ
## 1      NA      NA      NA      NA      NA      NA      NA      NA      NA
```

```
##    DRD370M DRD370MQ DRD370N DRD370NQ DRD370O DRD370OQ DRD370P DRD370PQ DRD370Q
## 1     NA       NA       NA      NA       NA      NA       NA      NA       NA
##    DRD370QQ DRD370R DRD370RQ DRD370S DRD370SQ DRD370T DRD370TQ DRD370U DRD370UQ
## 1      NA       NA      NA       NA      NA       NA      NA       NA      NA
##    DRD370V
## 1     NA
```

2.0.2 *Dietary Interview - Total Nutrient Intakes, Second Day*

```
#DR2TOT_J <- nhanes('DR2TOT_J')
#write.csv(DR2TOT_J,'DR2TOT_J.csv')
DR2TOT <- read.csv('DR2TOT_J.csv')[-1]
DR2TOT %>%
  head(1)
```

```
##     SEQN WTDRD1 WTDR2D DR2DRSTZ DR2EXMER DRABF DRDINT DR2DBIH DR2DAY DR2LANG
## 1 93703      0     NA        5       NA    NA     NA      NA     NA      NA
##    DR2MRESP DR2HELP DR2TNUMF DR2STY DR2SKY DR2TKCAL DR2TPROT DR2TCARB DR2TSUGR
## 1      NA       NA      NA      NA     NA       NA       NA       NA       NA
##    DR2TFIBE DR2TTFAT DR2TSFAT DR2TMFAT DR2TPFAT DR2TCHOL DR2TATOC DR2TATOA
## 1      NA       NA       NA       NA       NA       NA       NA       NA
##    DR2TRET DR2TVARA DR2TACAR DR2TBCAR DR2TCRYP DR2TLYCO DR2TLZ DR2TVB1 DR2TVB2
## 1     NA       NA       NA       NA       NA       NA     NA      NA      NA
##    DR2TNIAC DR2TVB6 DR2TFOLA DR2TFA DR2TFF DR2TFDFE DR2TCHL DR2TVB12 DR2TB12A
## 1      NA       NA      NA      NA     NA       NA      NA       NA       NA
##    DR2TVC DR2TVD DR2TVK DR2TCALC DR2TPHOS DR2TMAGN DR2TIRON DR2TZINC DR2TCOPP
## 1     NA     NA     NA      NA       NA       NA       NA       NA       NA
##    DR2TSODI DR2TPOTA DR2TSELE DR2TCAFF DR2TTHEO DR2TALCO DR2TMOIS DR2TS040
## 1      NA       NA       NA       NA       NA       NA       NA       NA
##    DR2TS060 DR2TS080 DR2TS100 DR2TS120 DR2TS140 DR2TS160 DR2TS180 DR2TM161
## 1      NA       NA       NA       NA       NA       NA       NA       NA
##    DR2TM181 DR2TM201 DR2TM221 DR2TP182 DR2TP183 DR2TP184 DR2TP204 DR2TP205
## 1      NA       NA       NA       NA       NA       NA       NA       NA
```

```
##    DR2TP225 DR2TP226 DR2_300 DR2_320Z DR2_330Z DR2BWATZ DR2TWSZ
## 1        NA       NA      NA       NA       NA       NA      NA
```

3 EXAMINATION 数据

```
nhanesTables(data_group = 'EXAMINATION',year = 2017) %>%
  knitr::kable()
```

Data.File.Name	Data.File.Description
BPX_J	Blood Pressure
BMX_J	Body Measures
OHXDEN_J	Oral Health - Dentition
OHXREF_J	Oral Health - Recommendation of Care
DXXFEM_J	Dual-Energy X-ray Absorptiometry - Femur
DXX_J	Dual-Energy X-ray Absorptiometry - Whole Body
DXXSPN_J	Dual-Energy X-ray Absorptiometry - Spine
LUX_J	Liver Ultrasound Transient Elastography
DXXAG_J	Dual-Energy X-ray Absorptiometry - Android/Gynoid Measurements
BPXO_J	Blood Pressure - Oscillometric Measurements
AUX_J	Audiometry
AUXAR_J	Audiometry - Acoustic Reflex
AUXTYM_J	Audiometry - Tympanometry
AUXWBR_J	Audiometry - Wideband Reflectance

3.0.1 *Body Measures*

```
#BMX_J <- nhanes('BMX_J')
#write.csv(BMX_J,'BMX_J.csv')
BMX <- read.csv('BMX_J.csv')[-1]
```

```
BMX %>%
  head(1)
```

```
##    SEQN BMDSTATS BMXWT BMIWT BMXRECUM BMIRECUM BMXHEAD BMIHEAD BMXHT BMIHT
## 1 93703        1  13.7     3     89.6       NA      NA      NA  88.6    NA
##    BMXBMI BMXLEG BMILEG BMXARML BMIARML BMXARMC BMIARMC BMXWAIST BMIWAIST BMXHIP
## 1   17.5     NA     NA      18      NA    16.2      NA     48.2       NA     NA
##    BMIHIP
## 1     NA
```

3.0.2 *Blood Pressure*

```
#BPX_J <- nhanes('BPX_J')
#write.csv(BPX_J,'BPX_J.csv')
BPX <- read.csv('BPX_J.csv')[-1]
BPX %>%
  head(1)
```

```
##    SEQN PEASCCT1 BPXCHR BPAARM BPACSZ BPXPLS BPXPULS BPXPTY BPXML1 BPXSY1
## 1 93703       NA    120     NA     NA     NA       1     NA     NA     NA
##    BPXDI1 BPAEN1 BPXSY2 BPXDI2 BPAEN2 BPXSY3 BPXDI3 BPAEN3 BPXSY4 BPXDI4 BPAEN4
## 1     NA     NA     NA     NA     NA     NA     NA     NA     NA     NA     NA
```

Liver Ultrasound Transient Elastography

```
#LUX_J <- nhanes('LUX_J')
#write.csv(LUX_J,'LUX_J.csv')
LUX <- read.csv('LUX_J.csv')[-1]
LUX %>%
  head(1)
```

```
##    SEQN LUAXSTAT LUARXNC LUARXND LUARXIN LUAPNME LUANMVGP LUANMTGP LUATECH
## 1 93705        1      NA      NA      NA       M       10       20       A
##    LUXSMED LUXSIQR LUXSIQRM LUXCAPM LUXCPIQR
## 1    12.5       3       24     225       28
```

4   LABORATORY 数据

```
nhanesTables(data_group = 'LABORATORY',year = 2017) %>%
  knitr::kable()
```

Data.File.Name	Data.File.Description
UCFLOW_J	Urine Flow Rate
FASTQX_J	Fasting Questionnaire
GHB_J	Glycohemoglobin
ALB_CR_J	Albumin & Creatinine - Urine
UCPREG_J	Urine Pregnancy Test
HIV_J	HIV Antibody Test
HEPA_J	Hepatitis A
HEPB_S_J	Hepatitis B: Surface Antibody
HEPBD_J	Hepatitis B: Core antibody, Surface antigen, and Hepatitis D antibody
HEPC_J	Hepatitis C: RNA (HCV-RNA), Confirmed Antibody (INNO-LIA), & Genotype
HEPE_J	Hepatitis E: IgG & IgM Antibodies
CBC_J	Complete Blood Count with 5-Part Differential
HSCRP_J	High-Sensitivity C-Reactive Protein
TCHOL_J	Cholesterol - Total
HDL_J	Cholesterol - High - Density Lipoprotein (HDL)
BIOPRO_J	Standard Biochemistry Profile
FETIB_J	Iron Status - Serum
PBCD_J	Lead, Cadmium, Total Mercury, Selenium, & Manganese - Blood
CRCO_J	Chromium & Cobalt
IHGEM_J	Mercury: Inorganic, Ethyl and Methyl - Blood
CMV_J	Cytomegalovirus IgG & IgM Antibodies - Serum
GLU_J	Plasma Fasting Glucose
COT_J	Cotinine and Hydroxycotinine - Serum
INS_J	Insulin

Data.File.Name	Data.File.Description
FERTIN_J	Ferritin
VIC_J	Vitamin C
TRIGLY_J	Cholesterol - Low-Density Lipoproteins (LDL) & Triglycerides
FOLATE_J	Folate - RBC
FOLFMS_J	Folate Forms - Total & Individual - Serum
UAS_J	Arsenics - Speciated - Urine
UTAS_J	Arsenic - Total - Urine
UM_J	Metals - Urine
UCM_J	Chromium - Urine
UHG_J	Mercury: Inorganic - Urine
UNI_J	Nickel - Urine
UIO_J	Iodine - Urine
VOCWB_J	Volatile Organic Compounds and Trihalomethanes/MTBE - Blood
PFAS_J	Perfluoroalkyl and Polyfluoroalkyl Substances
PHTHTE_J	Phthalates and Plasticizers Metabolites - Urine
SSPFAS_J	Perfluoroalkyl and Polyfluoroalkyl Substances (Surplus)
TFR_J	Transferrin Receptor
VITAEC_J	Vitamin A, Vitamin E & Carotenoids
OPD_J	Organophosphate Insecticides - Dialkyl Phosphate Metabolites - Urine
FR_J	Flame Retardants - Urine
UCOT_J	Cotinine, Hydroxycotinine, & Other Nicotine Metabolites and Analogs - Urine
VID_J	Vitamin D
PERNT_J	Perchlorate, Nitrate & Thiocyanate - Urine
UVOC_J	Volatile Organic Compound (VOC) Metabolites - Urine
SSUVOC_J	Volatile Organic Compound (VOC) Metabolites II - Urine (Surplus)

4.0.1 *Fasting Questionnaire*

```
#FASTQX_J <- nhanes('FASTQX_J')
#write.csv(FASTQX_J,'FASTQX_J.csv')
#remove(FASTQX_J)
FASTQX <- read.csv('FASTQX_J.csv')[-1]
FASTQX %>%
  head(1)
```

```
##     SEQN PHQ020 PHACOFHR PHACOFMN PHQ030 PHAALCHR PHAALCMN PHQ040 PHAGUMHR
## 1 93703     NA       NA       NA     NA       NA       NA     NA       NA
##    PHAGUMMN PHQ050 PHAANTHR PHAANTMN PHQ060 PHASUPHR PHASUPMN PHAFSTHR PHAFSTMN
## 1       NA     NA       NA       NA     NA       NA       NA       NA       NA
##    PHDSESN
## 1       2
```

4.0.2 *Cholesterol - Total*

```
#TCHOL_J <- nhanes('TCHOL_J')
#write.csv(TCHOL_J,'TCHOL_J.csv')
#remove(TCHOL_J)
TCHOL <- read.csv('TCHOL_J.csv')[-1]
TCHOL %>%
  head(1)
```

```
##     SEQN LBXTC LBDTCSI
## 1 93705   157    4.06
```

4.0.3 *Cholesterol - High - Density Lipoprotein (HDL)*

```
#HDL_J <- nhanes('HDL_J')
#write.csv(HDL_J,'HDL_J.csv')
```

```
#remove(HDL_J)
HDL <- read.csv('HDL_J.csv')[-1]
HDL %>%
  head(1)
```

```
##    SEQN LBDHDD LBDHDDSI
## 1 93705     60     1.55
```

5 QUESTIONNAIRE 数据

5.1 Part A: outcomes

```
nhanesTables(data_group = 'QUESTIONNAIRE',year = 2017) %>%
  knitr::kable()
```

Data.File.Name	Data.File.Description
BPQ_J	Blood Pressure & Cholesterol
HUQ_J	Hospital Utilization & Access to Care
HEQ_J	Hepatitis
CDQ_J	Cardiovascular Health
PAQY_J	Physical Activity - Youth
PAQ_J	Physical Activity
IMQ_J	Immunization
HIQ_J	Health Insurance
DLQ_J	Disability
DIQ_J	Diabetes
PFQ_J	Physical Functioning
SMQRTU_J	Smoking - Recent Tobacco Use
SMQFAM_J	Smoking - Household Smokers
SMQSHS_J	Smoking - Secondhand Smoke Exposure
SMQ_J	Smoking - Cigarette Use
MCQ_J	Medical Conditions

Data.File.Name	Data.File.Description
OHQ_J	Oral Health
HSQ_J	Current Health Status
HOQ_J	Housing Characteristics
DEQ_J	Dermatology
INQ_J	Income
ACQ_J	Acculturation
RHQ_J	Reproductive Health
SLQ_J	Sleep Disorders
OCQ_J	Occupation
DPQ_J	Mental Health - Depression Screener
DUQ_J	Drug Use
ECQ_J	Early Childhood
OSQ_J	Osteoporosis
KIQ_U_J	Kidney Conditions - Urology
CBQ_J	Consumer Behavior
DBQ_J	Diet Behavior & Nutrition
RXQ_RX_J	Prescription Medications
WHQ_J	Weight History
WHQMEC_J	Weight History - Youth
RXQASA_J	Preventive Aspirin Use
AUQ_J	Audiometry
PUQMEC_J	Pesticide Use
ALQ_J	Alcohol Use
VTQ_J	Volatile Toxicant
CBQPFC_J	Consumer Behavior Phone Follow-up Module - Child
CBQPFA_J	Consumer Behavior Phone Follow-up Module - Adult
FSQ_J	Food Security

5.1.1 *Hospital Utilization & Access to Care*

```
#HUQ_J <- nhanes('HUQ_J')
#write.csv(HUQ_J,'HUQ_J.csv')
#remove(HUQ_J)
HUQ <- read.csv('HUQ_J.csv')[-1]
HUQ %>%
  head(1)
```

```
##     SEQN HUQ010 HUQ020 HUQ030 HUQ041 HUQ051 HUQ061 HUQ071 HUD080 HUQ090
## 1 93703      1      3      1      2      3     NA      2     NA     NA
```

5.1.2 *Cardiovascular Health*

```
#CDQ_J <- nhanes('CDQ_J')
#write.csv(CDQ_J,'CDQ_J.csv')
#remove(CDQ_J)
#CDQ <- read.csv('CDQ_J.csv')[-1]# 数据太少
```

5.1.3 *Immunization*

```
#IMQ_J <- nhanes('IMQ_J')
#write.csv(IMQ_J,'IMQ_J.csv')
#remove(IMQ_J)
IMQ <- read.csv('IMQ_J.csv')[-1]
IMQ %>%
  head(1)
```

```
##     SEQN IMQ011 IMQ020 IMQ060 IMQ070 IMQ081A IMQ081B IMQ081C IMQ081D IMQ090
## 1 93703      1      1     NA     NA      NA      NA      NA      NA     NA
##    IMQ100
## 1     NA
```

5.1.4 *Physical Functioning*

```r
#PFQ_J <- nhanes('PFQ_J')
#write.csv(PFQ_J,'PFQ_J.csv')
#remove(PFQ_J)
PFQ <- read.csv('PFQ_J.csv')[-1]
PFQ %>%
  head(1)
```

```
##     SEQN PFQ020 PFQ030 PFQ033 PFQ041 PFQ049 PFQ051 PFQ054 PFQ057 PFQ059 PFQ061A
## 1 93705     NA     NA     NA     NA      2      2      2      2      2       1
##     PFQ061B PFQ061C PFQ061D PFQ061E PFQ061F PFQ061G PFQ061H PFQ061I PFQ061J
## 1        1       1       1       1       1       1       1       1       1
##     PFQ061K PFQ061L PFQ061M PFQ061N PFQ061O PFQ061P PFQ061Q PFQ061R PFQ061S
## 1        1       1       1       1       1       1       1       1       1
##     PFQ061T PFQ063A PFQ063B PFQ063C PFQ063D PFQ063E PFQ090
## 1        1      NA      NA      NA      NA      NA      2
```

5.1.5 *Sleep Disorders*

```r
#SLQ_J <- nhanes('SLQ_J')
#write.csv(SLQ_J,'SLQ_J.csv')
#remove(SLQ_J)
SLQ <- read.csv('SLQ_J.csv')[-1]
SLQ %>%
  head(1)
```

```
##     SEQN SLQ300 SLQ310 SLD012 SLQ320 SLQ330 SLD013 SLQ030 SLQ040 SLQ050 SLQ120
## 1 93705  23:00  07:00      8  23:00  07:00      8      2      0      2      0
```

5.1.6   *Mental Health - Depression Screener*

```
#DPQ_J <- nhanes('DPQ_J')
#write.csv(DPQ_J,'DPQ_J.csv')
#remove(DPQ_J)
DPQ <- read.csv('DPQ_J.csv')[-1]
DPQ %>%
  head(1)
```

```
##     SEQN DPQ010 DPQ020 DPQ030 DPQ040 DPQ050 DPQ060 DPQ070 DPQ080 DPQ090 DPQ100
## 1 93705      0      0      0      0      0      0      0      0      0     NA
```

5.1.7   *Osteoporosis*

```
#OSQ_J <- nhanes('OSQ_J')
#write.csv(OSQ_J,'OSQ_J.csv')
#remove(OSQ_J)
#OSQ <- read.csv('OSQ_J.csv')[-1]# 数据太少
```

5.1.8   *Kidney Conditions - Urology*

```
#KIQ_U_J <- nhanes('KIQ_U_J')
#write.csv(KIQ_U_J,'KIQ_U_J.csv')
#remove(KIQ_U_J)
KIQ_U <- read.csv('KIQ_U_J.csv')[-1]
KIQ_U %>%
  head(1)
```

```
##     SEQN KIQ022 KIQ025 KIQ026 KIQ029 KIQ005 KIQ010 KIQ042 KIQ430 KIQ044 KIQ450
## 1 93705      2     NA      2     NA      1     NA      1      1      1      1
##   KIQ046 KIQ470 KIQ050 KIQ052 KIQ480
## 1      2     NA      1      1      2
```

5.1.9 *Weight History*

```r
#WHQ_J <- nhanes('WHQ_J')
#write.csv(WHQ_J,'WHQ_J.csv')
#remove(WHQ_J)
WHQ <- read.csv('WHQ_J.csv')[-1]
WHQ %>%
  head(1)
```

```
##     SEQN WHD010 WHD020 WHQ030 WHQ040 WHD050 WHQ060 WHQ070 WHD080A WHD080B
## 1 93705     63    165      1      3    165     NA      2      NA      NA
##    WHD080C WHD080D WHD080E WHD080F WHD080G WHD080H WHD080I WHD080J WHD080K
## 1      NA      NA      NA      NA      NA      NA      NA      NA      NA
##    WHD080M WHD080N WHD080O WHD080P WHD080Q WHD080R WHD080S WHD080T WHD080U
## 1      NA      NA      NA      NA      NA      NA      NA      NA      NA
##    WHD080L WHQ225 WHD110 WHD120 WHD130 WHD140 WHQ150 WHQ190 WHQ200
## 1      NA      4    150    130     63    170     62      2     NA
```

5.2 Part B: factors

5.2.1 Physical Activity - Youth

```r
#PAQY_J <- nhanes('PAQY_J')
#write.csv(PAQY_J,'PAQY_J.csv')
#remove(PAQY_J)
PAQY <- read.csv('PAQY_J.csv')[-1]
PAQY %>%
  head(1)
```

```
##    SEQN PAQ706 PAQ710 PAQ715
## 1 93703      7      1      8
```

5.2.2   *Physical Activity*

```r
#PAQ_J <- nhanes('PAQ_J')
#write.csv(PAQ_J,'PAQ_J.csv')
#remove(PAQ_J)
PAQ <- read.csv('PAQ_J.csv')[-1]
PAQ %>%
  head(1)
```

```
##     SEQN PAQ605 PAQ610 PAD615 PAQ620 PAQ625 PAD630 PAQ635 PAQ640 PAD645 PAQ650
## 1 93705      2     NA     NA      2     NA     NA      2     NA     NA      2
##    PAQ655 PAD660 PAQ665 PAQ670 PAD675 PAD680
## 1     NA     NA      1      2     60    300
```

5.2.3   *Smoking - Recent Tobacco Use*

```r
#SMQRTU_J <- nhanes('SMQRTU_J')
#write.csv(SMQRTU_J,'SMQRTU_J.csv')
#remove(SMQRTU_J)
SMQRTU <- read.csv('SMQRTU_J.csv')[-1]
SMQRTU %>%
  head(1)
```

```
##     SEQN SMQ681 SMQ690A SMQ710 SMQ720 SMQ725 SMQ690B SMQ740 SMQ690C SMQ770
## 1 93705      2      NA     NA     NA     NA      NA     NA      NA     NA
##    SMQ690G SMQ845 SMQ690H SMQ849 SMQ851 SMQ690D SMQ800 SMQ690E SMQ817 SMQ690K
## 1      NA     NA      NA     NA      2      NA     NA      NA     NA      NA
##    SMQ857O SMQ863 SMQ690F SMQ830 SMQ840 SMDANY SMAQUEX
## 1      NA      2      NA     NA     NA      2       2
```

5.2.4 *Smoking - Household Smokers*

```
#SMQFAM_J <- nhanes('SMQFAM_J')
#write.csv(SMQFAM_J,'SMQFAM_J.csv')
#remove(SMQFAM_J)
SMQFAM <- read.csv('SMQFAM_J.csv')[-1]
SMQFAM %>%
  head(1)
```

```
##    SEQN SMD460 SMD470 SMD480
## 1 93703      0     NA     NA
```

5.2.5 *Smoking - Secondhand Smoke Exposure*

```
#SMQSHS_J <- nhanes('SMQSHS_J')
#write.csv(SMQSHS_J,'SMQSHS_J.csv')
#remove(SMQSHS_J)
SMQSHS <- read.csv('SMQSHS_J.csv')[-1]
SMQSHS %>%
  head(1)
```

```
##    SEQN SMQ856 SMQ858 SMQ860 SMQ862 SMQ866 SMQ868 SMQ870 SMQ872 SMQ874 SMQ876
## 1 93703     NA     NA      2     NA     NA     NA      1      2      2     NA
##   SMQ878 SMQ880 SMQ940 SMAQUEX
## 1      1      2      2       3
```

5.2.6 *Smoking - Cigarette Use*

```
#SMQ_J <- nhanes('SMQ_J')
#write.csv(SMQ_J,'SMQ_J.csv')
#remove(SMQ_J)
SMQ <- read.csv('SMQ_J.csv')[-1]
```

```
SMQ %>%
  head(1)
```

```
##     SEQN SMQ020 SMD030 SMQ040 SMQ050Q SMQ050U SMD057 SMQ078 SMD641 SMD650 SMD093
## 1 93705      1     16      3      30       4      5     NA     NA     NA     NA
##    SMDUPCA SMD100BR SMD100FL SMD100MN SMD100LN SMD100TR SMD100NI SMD100CO SMQ621
## 1                       NA       NA       NA       NA       NA       NA     NA
##    SMD630 SMQ661 SMQ665A SMQ665B SMQ665C SMQ665D SMQ670 SMQ848 SMQ852Q SMQ852U
## 1     NA     NA     NA     NA     NA     NA     NA     NA     NA     NA
##    SMQ890 SMQ895 SMQ900 SMQ905 SMQ910 SMQ915 SMAQUEX2
## 1      2     NA      2     NA      2     NA       1
```

5.2.7 *Medical Conditions*

```
#MCQ_J <- nhanes('MCQ_J')
#write.csv(MCQ_J,'MCQ_J.csv')
#remove(MCQ_J)
MCQ <- read.csv('MCQ_J.csv')[-1]
MCQ %>%
  head(1)
```

```
##     SEQN MCQ010 MCQ025 MCQ035 MCQ040 MCQ050 AGQ030 MCQ053 MCQ080 MCQ092 MCD093
## 1 93703      2     NA     NA     NA     NA     NA      2     NA     NA     NA
##    MCQ149 MCQ151 RHD018 MCQ160A MCD180A MCQ195 MCQ160N MCD180N MCQ160B MCD180B
## 1     NA     NA     NA     NA     NA     NA     NA     NA     NA     NA
##    MCQ160C MCD180C MCQ160D MCD180D MCQ160E MCD180E MCQ160F MCD180F MCQ160M
## 1     NA     NA     NA     NA     NA     NA     NA     NA     NA
##    MCQ170M MCD180M MCQ160G MCD180G MCQ160K MCQ170K MCD180K MCQ160O MCQ160L
## 1     NA     NA     NA     NA     NA     NA     NA     NA     NA
##    MCQ170L MCD180L MCQ500 MCQ510A MCQ510B MCQ510C MCQ510D MCQ510E MCQ510F MCQ520
## 1     NA     NA     NA     NA     NA     NA     NA     NA     NA     NA
##    MCQ530 MCQ540 MCQ550 MCQ560 MCQ570 MCQ203 MCQ206 MCQ220 MCQ230A MCD240A
## 1     NA     NA     NA     NA     NA     NA     NA     NA     NA     NA
```

```
##    MCQ230B MCD240B MCQ230C MCD240C MCQ230D MCQ300B MCQ300C MCQ300A MCQ366A
## 1     NA      NA      NA      NA      NA      NA      NA      NA      NA
##    MCQ366B MCQ366C MCQ366D MCQ371A MCQ371B MCQ371C MCQ371D OSQ230
## 1     NA      NA      NA      NA      NA      NA      NA      NA
```

5.2.8 *Income*

```
#INQ_J <- nhanes('INQ_J')
#write.csv(INQ_J,'INQ_J.csv')
#remove(INQ_J)
INQ <- read.csv('INQ_J.csv')[-1]
INQ %>%
  head(1)
```

```
##     SEQN INQ020 INQ012 INQ030 INQ060 INQ080 INQ090 INQ132 INQ140 INQ150 IND235
## 1 93703      1      2      2      2      2      2      2      1      2     12
##    INDFMMPI INDFMMPC INQ300 IND310 INQ320
## 1        5        3      1     NA      1
```

5.2.9 *Acculturation*

```
#ACQ_J <- nhanes('ACQ_J')
#write.csv(ACQ_J,'ACQ_J.csv')
#remove(ACQ_J)
ACQ <- read.csv('ACQ_J.csv')[-1]
ACQ %>%
  head(1)
```

```
##     SEQN ACD011A ACD011B ACD011C ACD040 ACD110
## 1 93705       1      NA      NA     NA     NA
```

5.2.10   *Reproductive Health*

```
#RHQ_J <- nhanes('RHQ_J')
#write.csv(RHQ_J,'RHQ_J.csv')
#remove(RHQ_J)
RHQ <- read.csv('RHQ_J.csv')[-1]
RHQ %>%
  head(1)
```

```
##     SEQN RHQ010 RHD018 RHQ020 RHQ031 RHD043 RHQ060 RHQ070 RHQ074 RHQ076 RHQ078
## 1 93705     12     NA     NA      2      7     50     NA     NA     NA     NA
##    RHQ131 RHD143 RHQ160 RHQ162 RHQ163 RHQ166 RHQ169 RHQ172 RHD173 RHQ171 RHD180
## 1      1     NA      2      2     NA      2     NA      2     NA      2     15
##    RHD190 RHQ197 RHQ200 RHD280 RHQ291 RHQ305 RHQ332 RHQ420 RHQ540 RHQ542A
## 1     18     NA     NA      2     NA      2     NA      1      1     10
##    RHQ542B RHQ542C RHQ542D RHQ554 RHQ560Q RHQ560U RHQ570 RHQ576Q RHQ576U RHQ580
## 1      NA      NA      NA      1       1       2      2      NA      NA     NA
##    RHQ586Q RHQ586U RHQ596 RHQ602Q RHQ602U
## 1      NA      NA     NA      NA      NA
```

5.2.11   *Occupation*

```
#OCQ_J <- nhanes('OCQ_J')
#write.csv(OCQ_J,'OCQ_J.csv')
#remove(OCQ_J)
OCQ <- read.csv('OCQ_J.csv')[-1]
OCQ %>%
  head(1)
```

```
##     SEQN OCD150 OCQ180 OCQ210 OCQ260 OCD270 OCQ670 OCQ380 OCD390G OCD395
## 1 93705      1     30      1      1     36      5     NA       2     NA
```

5.2.12   *Drug Use*

```
#DUQ_J <- nhanes('DUQ_J')
#write.csv(DUQ_J,'DUQ_J.csv')
#remove(DUQ_J)
DUQ <- read.csv('DUQ_J.csv')[-1]
DUQ %>%
  head(1)
```

```
##     SEQN DUQ200 DUQ210 DUQ211 DUQ213 DUQ215Q DUQ215U DUQ217 DUQ219 DUQ220Q
## 1 93705     NA     NA     NA     NA      NA      NA     NA     NA      NA
##    DUQ220U DUQ230 DUQ240 DUQ250 DUQ260 DUQ270Q DUQ270U DUQ272 DUQ280 DUQ290
## 1      NA     NA      2     NA     NA      NA      NA     NA     NA     NA
##    DUQ300 DUQ310Q DUQ310U DUQ320 DUQ330 DUQ340 DUQ350Q DUQ350U DUQ352 DUQ360
## 1     NA      NA      NA     NA     NA     NA      NA      NA     NA     NA
##    DUQ370 DUQ380A DUQ380B DUQ380C DUD380F DUQ390 DUQ400Q DUQ400U DUQ410 DUQ420
## 1      2      NA      NA      NA      NA     NA      NA      NA     NA     NA
##    DUQ430
## 1      NA
```

5.2.13   *Diet Behavior & Nutrition*

```
#DBQ_J <- nhanes('DBQ_J')
#write.csv(DBQ_J,'DBQ_J.csv')
#remove(DBQ_J)
DBQ <- read.csv('DBQ_J.csv')[-1]
DBQ %>%
  head(1)
```

```
##     SEQN DBQ010 DBD030 DBD041 DBD050 DBD055 DBD061 DBQ073A DBQ073B DBQ073C
## 1 93703      1    273      1    365    152    365      10      NA      NA
##    DBQ073D DBQ073E DBQ073U DBQ700 DBQ197 DBQ223A DBQ223B DBQ223C DBQ223D DBQ223E
## 1      NA      NA      NA     NA      3      NA      NA      12      NA      NA
```

```
##    DBQ223U DBQ229 DBQ235A DBQ235B DBQ235C DBQ301 DBQ330 DBQ360 DBQ370 DBD381
## 1      NA     NA      NA      NA      NA     NA     NA     NA     NA     NA
##    DBQ390 DBQ400 DBD411 DBQ421 DBQ424 DBD895 DBD900 DBD905 DBD910 CBQ596 CBQ606
## 1      NA     NA     NA     NA     NA     10      0      0      1     NA     NA
##    CBQ611 DBQ930 DBQ935 DBQ940 DBQ945
## 1      NA     NA     NA     NA     NA
```

5.2.14 *Alcohol Use*

```
#ALQ_J <- nhanes('ALQ_J')
#write.csv(ALQ_J,'ALQ_J.csv')
#remove(ALQ_J)
ALQ <- read.csv('ALQ_J.csv')[-1]
ALQ %>%
  head(1)
```

```
##     SEQN ALQ111 ALQ121 ALQ130 ALQ142 ALQ270 ALQ280 ALQ290 ALQ151 ALQ170
## 1 93705      1      7      1      0     NA     NA     NA      2      5
```