

## Appendix A. R syntax to create MSM variables from the sexual behavior component of the National Health and Nutrition Examination Survey, 1999-2014

```
msm <- function(yr){
  require(foreign) # used to read SAS files
  # create temporary file
  tf <- tempfile()
  # NHANES cycle 1999-2000
  if(yr==0){
    download.file("http://wwwn.cdc.gov/nchs/nhanes/1999-2000/SXQ.XPT", tf,
                  mode="wb",quiet=T)
    SXQ <- read.xport(tf)
    SXQ$yr <- 0
    SQ1 <- SXQ$SXQ020 #ever had sex
    SQ2 <- NA #ever had sex with a man
    SQ3 <- SXQ$SXQ200 #lifetime male partners
    SQ4 <- SXQ$SXQ220 #past 12 monthspast 12 months male partners
  }
  if(yr==1){ # NHANES cycle 2001-2002
    download.file("http://wwwn.cdc.gov/Nchs/Nhanes/2001-2002/SXQ_B.XPT", tf,
                  mode="wb",quiet=T)
    SXQ <- read.xport(tf)
    SXQ$yr <- 1
    SQ1 <- SXQ$SXQ020 #ever had sex
    SQ2 <- NA #ever had sex with a man
    SQ3 <- SXQ$SXQ200 #lifetime male partners
    SQ4 <- SXQ$SXQ220 #past 12 months male partners
  }
  # NHANES cycle 2003-2004
  if(yr==3){
    download.file("http://wwwn.cdc.gov/Nchs/Nhanes/2003-2004/SXQ_C.XPT", tf,
                  mode="wb",quiet=T)
    SXQ <- read.xport(tf)
    SXQ$yr <- 3
    SQ1 <- SXQ$SXQ020 #ever had sex
    SQ2 <- NA #ever had sex with a man
    SQ3 <- SXQ$SXQ200 #lifetime male partners
    SQ4 <- SXQ$SXQ220 #past 12 months male partners
  }
  # NHANES cycle 2005-2006
  if(yr==5){
    download.file("http://wwwn.cdc.gov/Nchs/Nhanes/2005-2006/SXQ_D.XPT", tf,
                  mode="wb",quiet=T)
    SXQ <- read.xport(tf)
    SXQ$yr <- 5
    SQ1 <- SXQ$SXQ021 #ever had sex
    SQ2 <- NA #ever had sex with a man
    SQ3 <- SXQ$SXQ410 #lifetime male partners
    SQ4 <- SXQ$SXQ550 #past 12 months male partners
  }
  # NHANES cycle 2007-2008
  if(yr==7){
    download.file("http://wwwn.cdc.gov/Nchs/Nhanes/2007-2008/SXQ_E.XPT", tf,
                  mode="wb",quiet=T)
    SXQ <- read.xport(tf)
    SXQ$yr <- 7
  }
}
```

```

SQ1    <- SXQ$SXQ021 #ever had sex
SQ2    <- NA          #ever had sex with a man
SQ3    <- SXQ$SXQ410 #lifetime male partners
SQ4    <- SXQ$SXQ550 #past 12 months male partners
}
# NHANES cycle 2009-2010
if(yr==9){
  download.file("http://wwwn.cdc.gov/Nchs/Nhanes/2009-2010/SXQ_F.XPT", tf,
               mode="wb",quiet=T)
  SXQ    <- read.xport(tf)
  SXQ$yr <- 9
  SQ1    <- SXQ$SXD021 #ever had sex
  SQ2    <- SXQ$SXQ809 #ever had sex with a man
  SQ3    <- SXQ$SXQ410 #lifetime male partners
  SQ4    <- SXQ$SXQ550 #past 12 months male partners
}
# NHANES cycle 2011-2012
if(yr==11){
  download.file("http://wwwn.cdc.gov/Nchs/Nhanes/2011-2012/SXQ_G.XPT", tf,
               mode="wb",quiet=T)
  SXQ    <- read.xport(tf)
  SXQ$yr <- 11
  SQ1    <- SXQ$SXD021 #ever had sex
  SQ2    <- SXQ$SXQ809 #ever had sex with a man
  SQ3    <- SXQ$SXQ410 #lifetime male partners
  SQ4    <- SXQ$SXQ550 #past 12 months male partners
}
# NHANES cycle 2013-2014
if(yr==13){
  download.file("http://wwwn.cdc.gov/Nchs/Nhanes/2013-2014/SXQ_H.XPT", tf,
               mode="wb",quiet=T)
  SXQ    <- read.xport(tf)
  SXQ$yr <- 13
  SQ1    <- SXQ$SXD021 #ever had sex
  SQ2    <- SXQ$SXQ809 #ever had sex with a man
  SQ3    <- SXQ$SXQ410 #lifetime male partners
  SQ4    <- SXQ$SXQ550 #past 12 months male partners
}
## MSM-Ever
if (yr %in% c(9,11,13)) {
  SXQ$msmever <- rep(NA,nrow(SXQ))
  SXQ$msmever <- (1*(SQ3>0))
  SXQ$msmever[SQ3 %in% c(77777,99999)] <- NA
  SXQ$msmever[SQ1==1 & SQ2==2] <- 0
  SXQ$msmever[SQ1==1 & SQ2==1] <- 1
} else {
  SXQ$msmever <- rep(NA,nrow(SXQ))
  SXQ$msmever <- (1*(SQ3>0))
  SXQ$msmever[SQ3 %in% c(77777,99999)] <-NA
}
## MSM-Current
SXQ$msmcurrent <- rep(NA,nrow(SXQ))
SXQ$msmcurrent[SQ4 %in% c(77777,99999)] <- NA
SXQ$msmcurrent[SXQ$msmever==0] <- 0
SXQ$msmcurrent[SXQ$msmever==1 & SQ4>0] <- 1
## MSM-Past
SXQ$msmpast <- rep(NA,nrow(SXQ))

```

```
SXQ$msmpast[SQ4 %in% c(77777,99999)] <- NA
SXQ$msmpast[SXQ$msmever==0] <- 0
SXQ$msmpast[SXQ$msmever==1 & SQ4==0] <- 1

return(SXQ)
}

require(dplyr)
SXQdata <- bind_rows(msm(0),msm(1),msm(3),msm(5),msm(7),
                    msm(9),msm(11),msm(13))
```