GSS Valentine's

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```r
library(foreign)
library(dplyr)
library(ggplot2)
library(ggthemes)
library(srvyr)
library(tidyr)
options(survey.lonely.psu = "adjust") #center variance contribution around grand mean
#options(survey.lonely.psu = "certainty") #make no contribution to variance

gss <- read.dta(file="C:/Users/DELL/Documents/UMN/GSS_stata/GSS7216_R1a.dta",
                convert.factors = F, missing.type = F)

gss <- gss %>% filter(!is.na(vpsu) & !is.na(vstrat)) %>%
  mutate(weight=ifelse(year<2004, wtssall, wtssnr))
  #https://gssdataexplorer.norc.org/pages/show?page=gss%2Fweighting
  #2004 onward adjusted for nonresponse, WTSSNR used 2004+
  #'72, '73, '74 unweighted, removed to have 1975-2016 weighted series
```

premarsx

There's been a lot of discussion about the way morals and attitudes about sex are changing in this country. If a man and woman have sex relations before marriage, do you think it is always wrong, almost always wrong, wrong only sometimes, or not wrong at all?
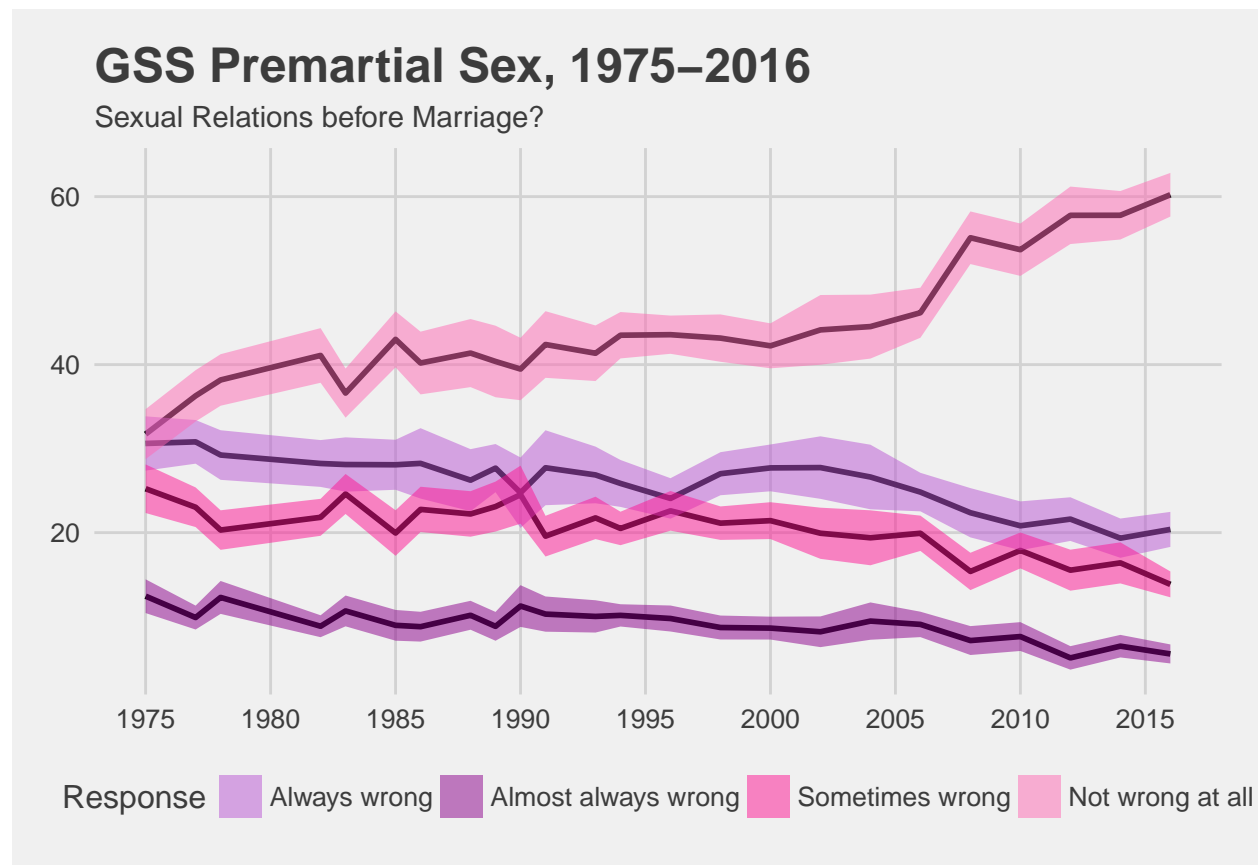
```r
gss.design.premarsx <- gss %>%
  select_("year","premarsx","sample","weight", "vpsu", "vstrat") %>%
  mutate(sample=as.numeric(sample)) %>%
  filter(!(sample==4|sample==5|sample==7)) %>% #removing 1982 and 1987 black oversample
  mutate(always_wrong=ifelse(premarsx==1,1,0),
         almost_always_wrong=ifelse(premarsx==2,1,0),
         sometimes_wrong=ifelse(premarsx==3,1,0),
         not_wrong_at_all=ifelse(premarsx==4,1,0)) %>%
  as_survey_design(ids= vpsu, weights= weight, strata= vstrat, nest=T) %>%
  filter(!is.na(premarsx)) %>%
  group_by(year) %>%
  summarize(always.wrong = survey_mean(always_wrong, vartype=c("se", "ci")),
            almost.always.wrong = survey_mean(almost_always_wrong, vartype=c("se", "ci")),
            sometimes.wrong = survey_mean(sometimes_wrong, vartype=c("se", "ci")),
            not.wrong.at.all = survey_mean(not_wrong_at_all, vartype=c("se", "ci"))) %>%
  gather(key=key, value=value, -year) %>%
  separate(key, into=c("response","stat"), sep="_") %>%
  mutate(stat=ifelse(is.na(stat), "mean", stat), value=value*100) %>%
  spread(key=stat, value=value) %>%
  mutate(response=factor(response,
                         levels=c("always.wrong","almost.always.wrong",
```

```
                                "sometimes.wrong","not.wrong.at.all")))

ggplot(gss.design.premarsx)+
  geom_line(aes(x=year, y=mean, group=response), size=1)+
  geom_ribbon(aes(x=year, ymin=low, ymax=upp, fill=response), alpha=.5)+
  scale_fill_manual(labels=c("Always wrong","Almost always wrong",
                             "Sometimes wrong","Not wrong at all"),
                    values=c("mediumorchid","darkmagenta", "deeppink","hotpink"))+
  ggtitle("GSS Premartial Sex, 1975-2016", subtitle = "Sexual Relations before Marriage?")+
  labs( fill="Response")+
  scale_x_continuous(limits=c(1975,2016), breaks=seq(1975,2016,5))+
  xlab("Year")+ylab("Percent of Population (GSS)")+
  theme_fivethirtyeight()
```


xmarsex

What is your opinion about a married person having sexual relations with someone other than the marriage partner–is it always wrong, almost always wrong, wrong only sometimes, or not wrong at all?

```
gss.design.xmarsex <- gss %>%
  select_("year","xmarsex","sample","weight", "vpsu", "vstrat") %>%
  mutate(sample=as.numeric(sample)) %>%
  filter(!(sample==4|sample==5|sample==7)) %>% #removing 1982 and 1987 black oversample
  mutate(always_wrong=ifelse(xmarsex==1,1,0),
```
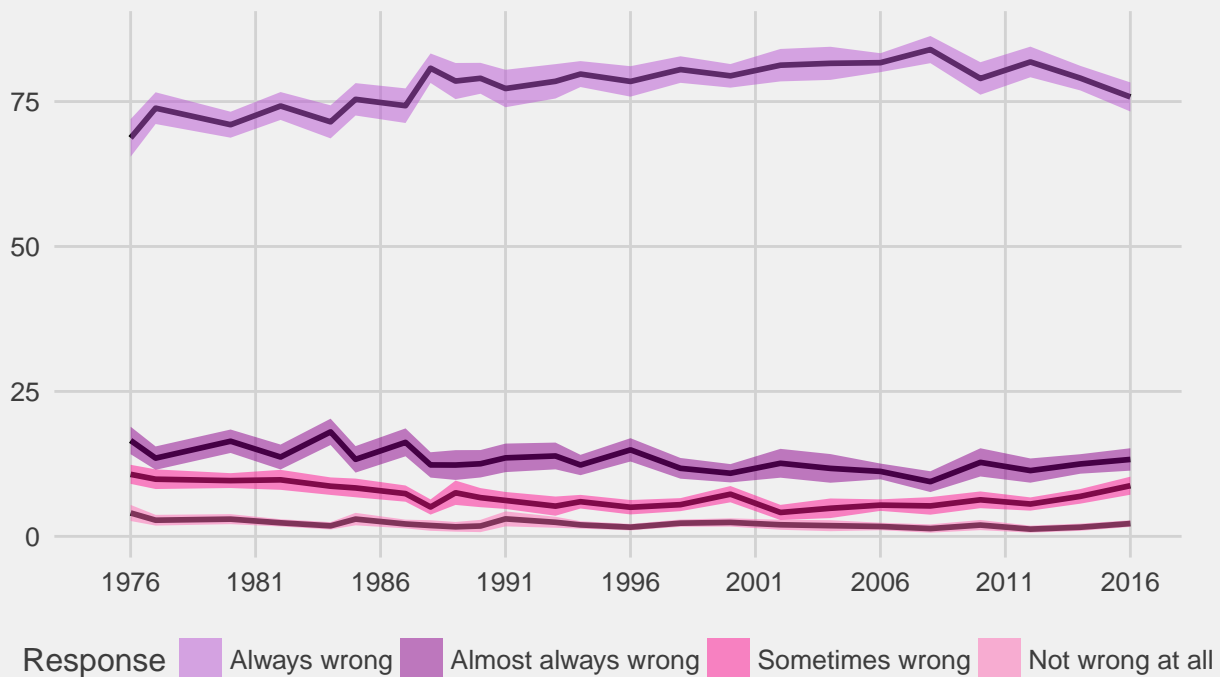
```r
            almost_always_wrong=ifelse(xmarsex==2,1,0),
            sometimes_wrong=ifelse(xmarsex==3,1,0),
            not_wrong_at_all=ifelse(xmarsex==4,1,0)) %>%
   as_survey_design(ids= vpsu, weights= weight, strata= vstrat, nest=T) %>%
   filter(!is.na(xmarsex)) %>%
   group_by(year) %>%
   summarize(always.wrong = survey_mean(always_wrong, vartype=c("se", "ci")),
             almost.always.wrong = survey_mean(almost_always_wrong, vartype=c("se", "ci")),
             sometimes.wrong = survey_mean(sometimes_wrong, vartype=c("se", "ci")),
             not.wrong.at.all = survey_mean(not_wrong_at_all, vartype=c("se", "ci"))) %>%
   gather(key=key, value=value, -year) %>%
   separate(key, into=c("response","stat"), sep="_") %>%
   mutate(stat=ifelse(is.na(stat), "mean", stat), value=value*100) %>%
   spread(key=stat, value=value) %>%
   mutate(response=factor(response,
                          levels=c("always.wrong","almost.always.wrong",
                                   "sometimes.wrong","not.wrong.at.all")))

ggplot(gss.design.xmarsex)+
  geom_line(aes(x=year, y=mean, group=response), size=1)+
  geom_ribbon(aes(x=year, ymin=low, ymax=upp, fill=response), alpha=.5)+
  scale_fill_manual(labels=c("Always wrong","Almost always wrong",
                             "Sometimes wrong","Not wrong at all"),
                    values=c("mediumorchid","darkmagenta", "deeppink","hotpink"))+
  ggtitle("GSS Extramarital Sex, 1976-2016",
          subtitle = "Sexual relations with someone other than marriage partner?")+
  labs( fill="Response")+
  scale_x_continuous(limits=c(1975,2016), breaks=seq(1976,2016,5))+
  xlab("Year")+ylab("Percent of Population (GSS)")+
  theme_fivethirtyeight()
```

GSS Extramarital Sex, 1976–2016

Sexual relations with someone other than marriage partner?

Response — Always wrong — Almost always wrong — Sometimes wrong — Not wrong at all

evstray

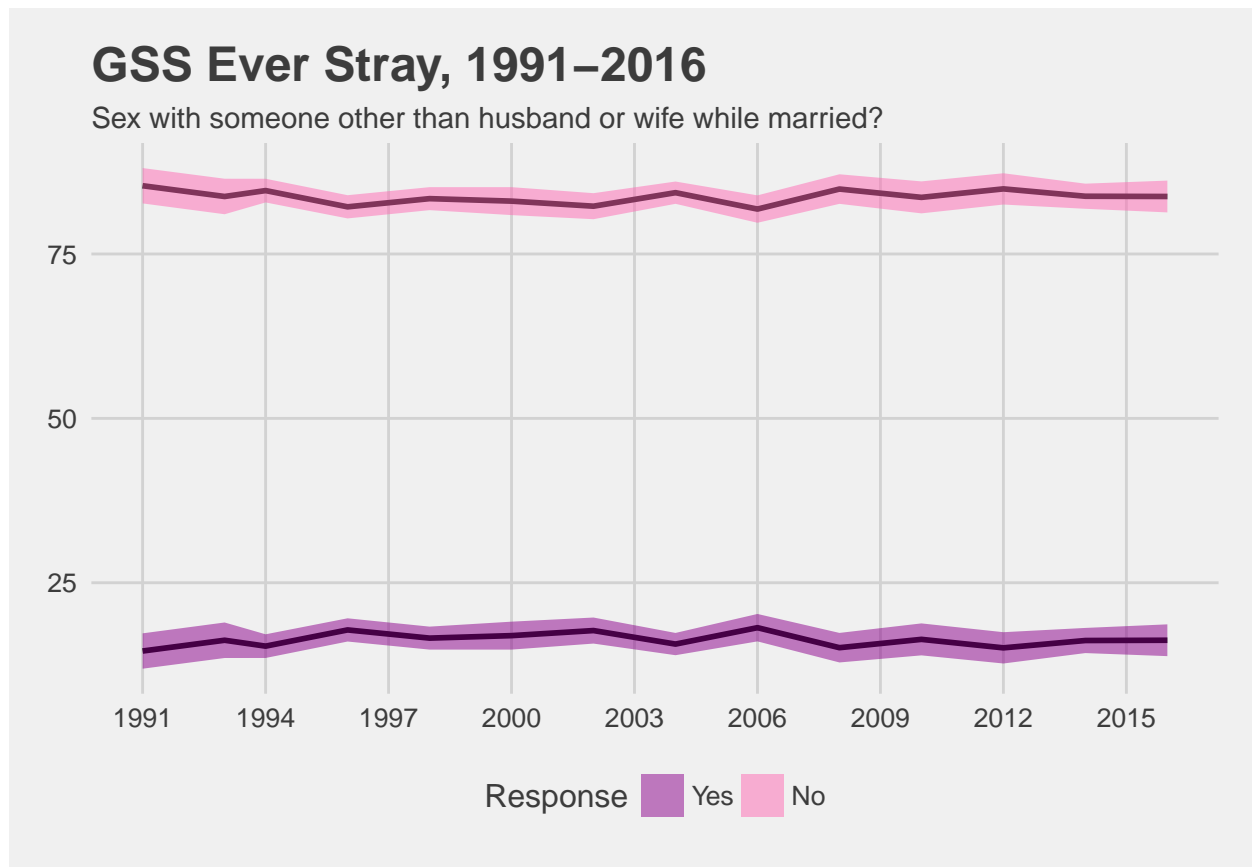Have you ever had sex with someone other than your husband or wife while you were married?

```
gss.design.evstray <- gss %>%
  select_("year","evstray","sample","weight", "vpsu", "vstrat") %>%
  mutate(sample=as.numeric(sample)) %>%
  filter(!(sample==4|sample==5|sample==7)) %>% #removing 1982 and 1987 black oversample
  mutate(Yes=ifelse(evstray==1, 1, 0),
         No=ifelse(evstray==2,1,0),
         evstray=ifelse(evstray==1|evstray==2, evstray, NA)) %>%
  as_survey_design(ids= vpsu, weights= weight, strata= vstrat, nest=T) %>%
  filter(!is.na(evstray)) %>%
  group_by(year) %>%
  summarize(Yes = survey_mean(Yes, vartype=c("se", "ci")),
            No = survey_mean(No, vartype=c("se", "ci"))) %>%
  gather(key=key, value=value, -year) %>%
  separate(key, into=c("response","stat"), sep="_") %>%
  mutate(stat=ifelse(is.na(stat), "mean", stat), value=value*100) %>%
  spread(key=stat, value=value) %>%
  mutate(response=factor(response,
                        levels=c("Yes","No")))

ggplot(gss.design.evstray)+
  geom_line(aes(x=year, y=mean, group=response), size=1)+
```

```
scale_colour_manual(labels=c("Yes","No"),
                    values=c("darkmagenta","hotpink"))+
geom_ribbon(aes(x=year, ymin=low, ymax=upp, fill=response), alpha=.5)+
scale_fill_manual(labels=c("Yes","No"),
                  values=c("darkmagenta","hotpink"))+
ggtitle("GSS Ever Stray, 1991-2016",
        subtitle = "Sex with someone other than husband or wife while married?")+
labs( fill="Response")+
scale_x_continuous(limits=c(1991,2016), breaks=seq(1991,2016,3))+
xlab("Year")+ylab("Percent of Population (GSS)")+
theme_fivethirtyeight()
```

GSS Ever Stray, 1991–2016

Sex with someone other than husband or wife while married?

sexual partners since 18 amongst those aged 20-24 by cohort - Twenge et al. 2017

Numwomen Nummen: Now thinking about the time since your 18th birthday (including the past 12 months) how many female/male partners have you had sex with?

I used Twenge et al.'s (2017) coding strategy . Coded as 1 if any partners, 0 if sexually inactive. Took all individuals in GSS aged 20-24 and grouped by birth decade. Twenge only used survey years 1989-2014. I use 1985-2016.

```
gss.design.twenge <- gss %>%
  select_("year","nummen","numwomen","age","cohort","sample","weight", "vpsu", "vstrat") %>%
```

```r
    mutate(sample=as.numeric(sample)) %>%
    filter(!(sample==4|sample==5|sample==7), #removing 1982 and 1987 black oversample
            age>19 & age <25, #filtering just 20-24 year olds at time of survey
            cohort>1964) %>%  #filtering out older birth cohorts
    mutate(Inactive=ifelse(numwomen==0 & nummen==0, 1,0),
            Active=ifelse(numwomen>0 | nummen>0, 1,0),
            cohortcat=ifelse(cohort<1970, "1960's",
                        ifelse(cohort>=1970 & cohort<1980, "1970's",
                            ifelse(cohort>=1980 & cohort<1990, "1980's", "1990's")))) %>%
    filter(!is.na(nummen)&!is.na(numwomen)) %>%
    as_survey_design(ids= vpsu, weights= weight, strata= vstrat, nest=T) %>%
    group_by(cohortcat) %>%
    summarize(Inactive = survey_mean(Inactive, vartype=c("se", "ci")),
            Active = survey_mean(Active, vartype=c("se", "ci"))) %>%
    gather(key=key, value=value, -cohortcat) %>%
    separate(key, into=c("response","stat"), sep="_") %>%
    mutate(stat=ifelse(is.na(stat), "mean", stat), value=value*100) %>%
    spread(key=stat, value=value) %>%
    mutate(response=factor(response,
                        levels=c("Inactive","Active")))

ggplot(gss.design.twenge)+
    geom_bar(aes(y = mean, x=cohortcat, fill=response), stat="identity")+
    scale_fill_manual(labels=c("Inactive","Active"),
                        values=c("hotpink","mediumorchid"))+
    ggtitle("GSS Sexual Inactivity: 20-24 year olds by cohort",
    subtitle = "Since your 18th birthday have you had a sexual partner? ")+
    labs( fill="Response")+
    xlab("Cohort")+ylab("Percent of Population (GSS)")+
    theme_fivethirtyeight()+
    geom_text(aes(x = cohortcat, y = 100-(.5*mean),
                            label = paste0(round(mean,1),"%")), size=3)
```
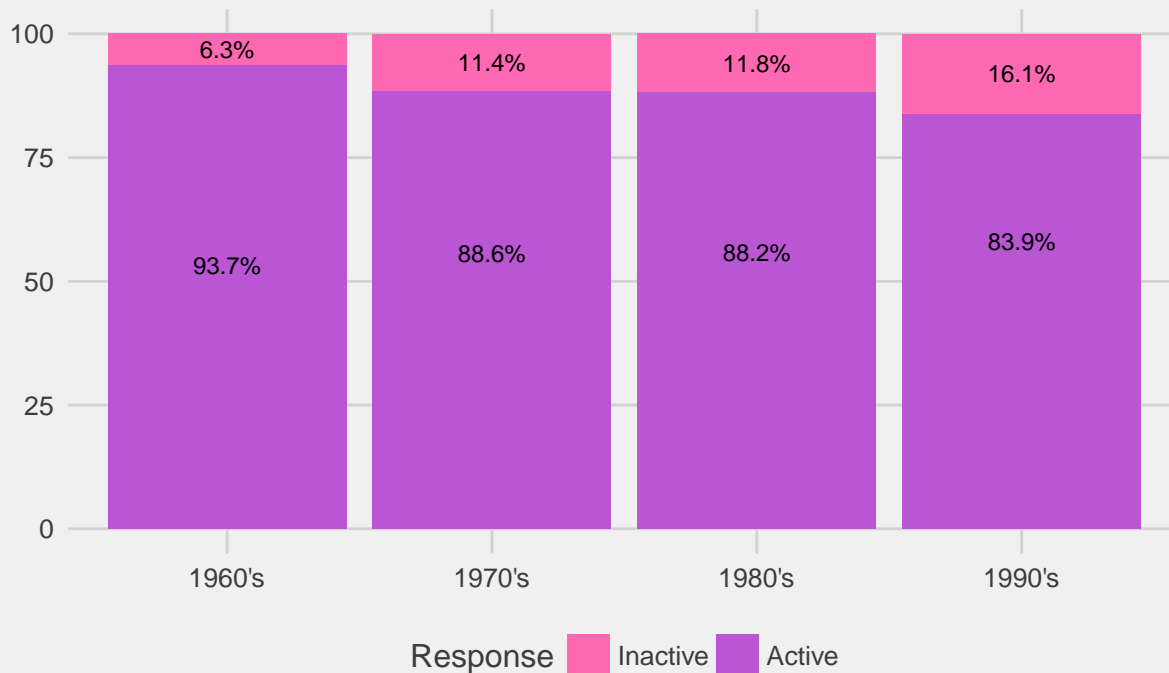
GSS Sexual Inactivity: 20–24 year olds by cohort

Since your 18th birthday have you had a sexual partner?

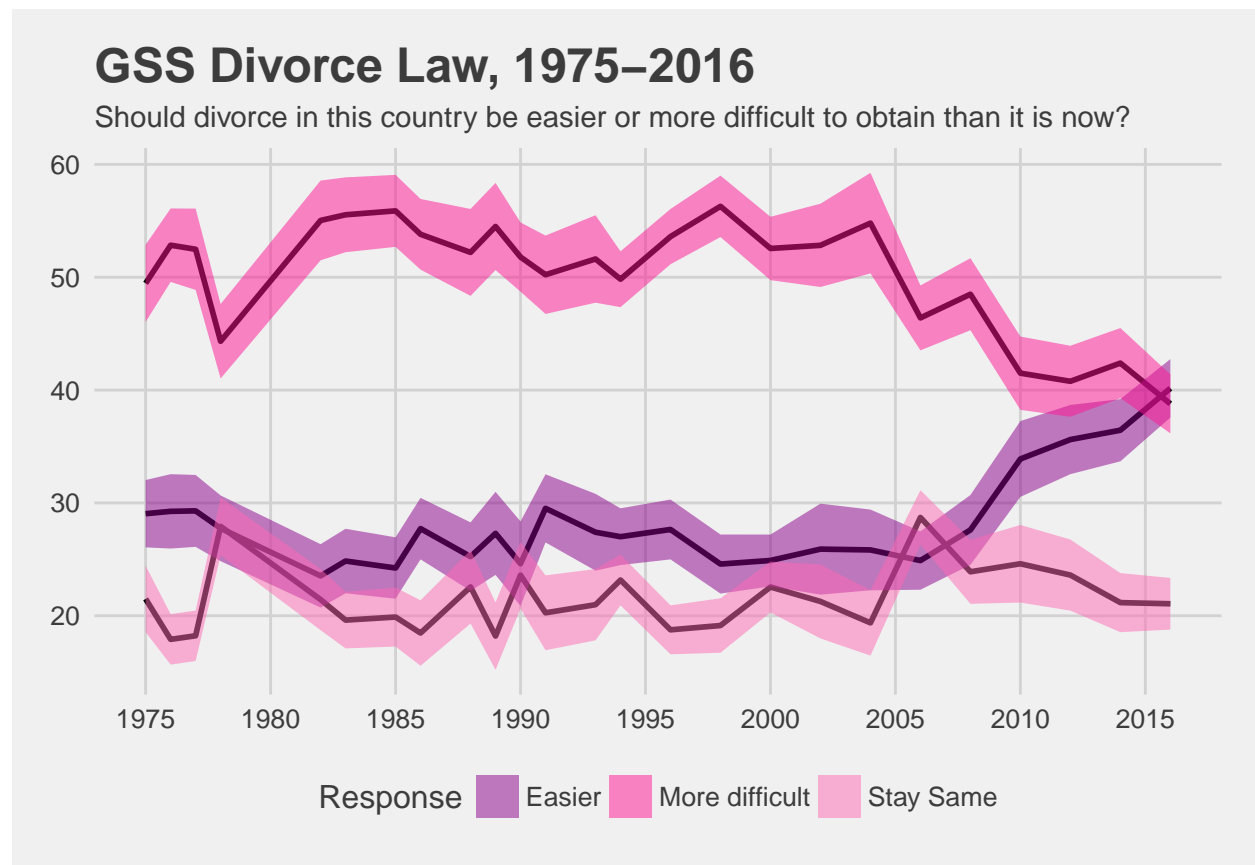## divlaw

Should divorce in this country be easier or more difficult to obtain than it is now?

```
gss.design.divlaw <- gss %>%
  select_("year","divlaw","sample","weight", "vpsu", "vstrat") %>%
  mutate(sample=as.numeric(sample)) %>%
  filter(!(sample==4|sample==5|sample==7)) %>% #removing 1982 and 1987 black oversample
  mutate(easier=ifelse(divlaw==1,1,0),
         more_difficult=ifelse(divlaw==2,1,0),
         stay_same=ifelse(divlaw==3,1,0)) %>%
  as_survey_design(ids= vpsu, weights= weight, strata= vstrat, nest=T) %>%
  filter(!is.na(divlaw)) %>%
  group_by(year) %>%
  summarize(easier = survey_mean(easier, vartype=c("se", "ci")),
            more.difficult = survey_mean(more_difficult, vartype=c("se", "ci")),
            stay.same = survey_mean(stay_same, vartype=c("se", "ci"))) %>%
  gather(key=key, value=value, -year) %>%
  separate(key, into=c("response","stat"), sep="_") %>%
  mutate(stat=ifelse(is.na(stat), "mean", stat), value=value*100) %>%
  spread(key=stat, value=value) %>%
  mutate(response=factor(response,
                    levels=c("easier","more.difficult",
                          "stay.same")))
```

```
ggplot(gss.design.divlaw)+
  geom_line(aes(x=year, y=mean, group=response), size=1)+
  geom_ribbon(aes(x=year, ymin=low, ymax=upp, fill=response), alpha=.5)+
  scale_fill_manual(labels=c("Easier","More difficult",
                            "Stay Same"),
                    values=c("darkmagenta", "deeppink","hotpink"))+
  ggtitle("GSS Divorce Law, 1975-2016",
  subtitle = "Should divorce in this country be easier or more difficult to obtain than it is now?")+
  labs( fill="Response")+
  scale_x_continuous(limits=c(1975,2016), breaks=seq(1975,2016,5))+
  xlab("Year")+ylab("Percent of Population (GSS)")+
  theme_fivethirtyeight()
```


divorce

Are you currently–married, widowed, divorced, separated, or have you never been married? B. IF CUR-
RENTLY MARRIED OR WIDOWED: Have you ever been divorced or legally separated?

```
gss.design.divorce <- gss %>%
  select_("year","divorce","sample","weight", "vpsu", "vstrat") %>%
  mutate(sample=as.numeric(sample)) %>%
  filter(!(sample==4|sample==5|sample==7)) %>% #removing 1982 and 1987 black oversample
  mutate(Yes=ifelse(divorce==1, 1, 0),
         No=ifelse(divorce==2,1,0)) %>%
```

```
  filter(!is.na(divorce)) %>%
  as_survey_design(ids= vpsu, weights= weight, strata= vstrat, nest=T) %>%
  group_by(year) %>%
  summarize(Yes = survey_mean(Yes, vartype=c("se", "ci")),
            No = survey_mean(No, vartype=c("se", "ci"))) %>%
  gather(key=key, value=value, -year) %>%
  separate(key, into=c("response","stat"), sep="_") %>%
  mutate(stat=ifelse(is.na(stat), "mean", stat), value=value*100) %>%
  spread(key=stat, value=value) %>%
  mutate(response=factor(response,
                         levels=c("Yes","No")))

ggplot(gss.design.divorce)+
  geom_line(aes(x=year, y=mean, group=response), size=1)+
  scale_colour_manual(labels=c("Yes","No"),
                      values=c("darkmagenta","hotpink"))+
  geom_ribbon(aes(x=year, ymin=low, ymax=upp, fill=response), alpha=.5)+
  scale_fill_manual(labels=c("Yes","No"),
                    values=c("darkmagenta","hotpink"))+
  ggtitle("GSS Divorce, 1975-2016",
          subtitle = "Have you ever been divorced or legally separated?")+
  labs( fill="Response")+
  scale_x_continuous(limits=c(1975,2016), breaks=seq(1975,2016,5))+
  xlab("Year")+ylab("Percent of Population (GSS)")+
  theme_fivethirtyeight()
```


GSS Divorce, 1975–2016

Have you ever been divorced or legally separated?