Person-Positivity Bias, Social Category Labels, and Attitudes toward Gays and Lesbians

Replication File

May 21, 2019

Loading Data

These analyses were conducted using R 3.5.1 on macOS High Sierra 10.13.4. To run the analyses, you must load the data `qword.csv`, as shown below.

```
> ## If do not have packages, use install.packages()
> library(ggplot2)
```

```
> ## Load Data
> con <- read.csv("qword.csv")
>
> ## subset to straight respondents
> constr <- subset(con, straight == 1)
> nrow(constr) # number of observations

[1] 1871
```

Variables

This section describes the coding of the variables in the analysis data. See Online Appendix for question wording.

- `age`: numeric age
- `agecat`: age categories (18-34, 35-44, 45-64, 65+)
- `female`: indicator for 1=female, 0=male
- `whitenh, blacknh, hisp`: indicator variables for White, non-Hispanic, Black, non-Hispanic and Hispanic
- `dem, rep, ind`: indicator variables for identifying as an Independent, Democrat/leaner, or Republican/leaner
- `college`: indicator variable for having a college degree
- `incn`: numeric household income category
- `lib, con`: indicator variables for identifying as conservative or liberal
- `auth.s`: authoritarianism scale from 0 to 1
- `straight`: indicator variable for self-identifying as heterosexual or straight
- `knowgaylesyes`: indicator variable for knowing someone who identifies as gay or lesbian
- `evangelical`: indicator variable for identifying as a born again or Evangelical Christian.
- `treat.ft`: categorical variable for feeling thermometer treatment group ("Gay and Lesbian Sexuality", "Gays and Lesbians", "Homosexuality", "Homosexuals")
- `treat.hs`: categorical variable for moral deterioration treatment group ("Gay and Lesbian Sexuality", "Gays and Lesbians", "Homosexuality", "Homosexuals", "Sexual Relations")
- `ft.all, ft.gayles, ft.glty, ft.homosexual, ft.homosexuality`: feeling thermometer scores from 0 to 100
- `ft.trumpism, ft.trumppeop`: feeling thermometer scores for Trump in people vs. construct condition, from 0 to 100
- `tmd.all, tmd.gayles, tmd.glty, tmd.homosexual, tmd.homosexuality, tmd.sex`: agreement on moral deterioration question, from 1 to 5.

Analyses in Main Text

This section produces the data included in Table 1.

```
> ## Function for returning mean and standard error of a variable
> meanse <- function(var){
+ m <- mean(var, na.rm= T)
+ se <- sd(var, na.rm = T)/sqrt(length(var[is.na(var) == F]))
+ c(m, se)
+ }
>
> ############################
> ## Feeling thermometers
> ############################
>
> rbind(meanse(constr$ft.gayles),
+ meanse(constr$ft.homosexual),
+ meanse(constr$ft.glty),
+ meanse(constr$ft.homosexuality))

         [,1]     [,2]
[1,] 55.51915 1.421846
[2,] 52.54176 1.447059
[3,] 49.49892 1.454654
[4,] 48.94856 1.514280

> ############################
> ## Moral Deterioration
> ############################
>
> rbind(meanse(constr$tmd.gayles),
+ meanse(constr$tmd.homosexual),
+ meanse(constr$tmd.glty),
+ meanse(constr$tmd.homosexuality),
+ meanse(constr$tmd.sex))

         [,1]       [,2]
[1,] 2.819372 0.07563234
[2,] 2.929919 0.07577471
[3,] 2.914508 0.07902997
[4,] 2.983827 0.07803512
[5,] 2.963989 0.08118334

> ############################
> ## n for each condition
> ############################
>
> whatn <- function(var){
+   n <- length(var[is.na(var) == F])
+   return(n)}
>
> ## Feeling thermometer
> c(whatn(constr$ft.gayles),
+ whatn(constr$ft.homosexual),
+ whatn(constr$ft.glty),
+ whatn(constr$ft.homosexuality))

[1] 470 443 465 486

> ## Moral Deterioration
> c(whatn(constr$tmd.gayles),
+ whatn(constr$tmd.homosexual),
+ whatn(constr$tmd.glty),
+ whatn(constr$tmd.homosexuality),
+ whatn(constr$tmd.sex))

[1] 382 371 386 371 361
```

This code conducts statistical tests of key category label comparisons, mentioned in the main text.

```
> ## ANOVA: Any differences across wording?
> an.ft <- aov(constr$ft.all ~ constr$treat.ft)
> summary(an.ft)

                  Df  Sum Sq Mean Sq F value  Pr(>F)
constr$treat.ft    3   13081    4360   4.378 0.00445 **
Residuals       1860 1852691     996
---
Signif. codes:  0 '***' 0.001 '**' 0.01 '*' 0.05 '.' 0.1 ' ' 1
7 observations deleted due to missingness
```

```
> an.tmd <- aov(constr$tmd.all ~ constr$treat.hs)
> summary(an.tmd)

                 Df Sum Sq Mean Sq F value Pr(>F)
constr$treat.hs    4      6   1.531   0.673   0.61
Residuals       1866   4241   2.273

> ## Person positivity (gay/lesbian vs. sexuality; homosexual vs. homosexuality)
> pp.ft.gayles <- t.test(constr$ft.gayles, constr$ft.glty, var.equal = F)
> pp.ft.homosex <- t.test(constr$ft.homosexual, constr$ft.homosexuality, var.equal = F)
> pp.tmd.gayles <- t.test(constr$tmd.gayles, constr$tmd.glty, var.equal = F)
> pp.tmd.homosex <- t.test(constr$tmd.homosexual, constr$tmd.homosexuality, var.equal = F)
>
> ## p-values reported in main text
> pp.ft.homosex$p.value

[1] 0.08658363

> pp.ft.gayles$p.value

[1] 0.003158193

> ## comparing colloquial person vs. clinical construct
> ft.both <- t.test(constr$ft.gayles, constr$ft.homosexuality, var.equal = F)
> tmd.both <- t.test(constr$tmd.gayles, constr$tmd.homosexuality, var.equal = F)
>
> ## p-values from these tests
> ft.both$p.value

[1] 0.001609785

> tmd.both$p.value

[1] 0.1306215
```

This code compares the Trump feeling thermometers, mentioned in the main text.

```
> trumpt <- t.test(constr$ft.trumpism, constr$ft.trumppeop, var.equal = F)
> trumpt$estimate

mean of x mean of y
 45.00210  43.38293

> trumpt$p.value

[1] 0.3681838
```

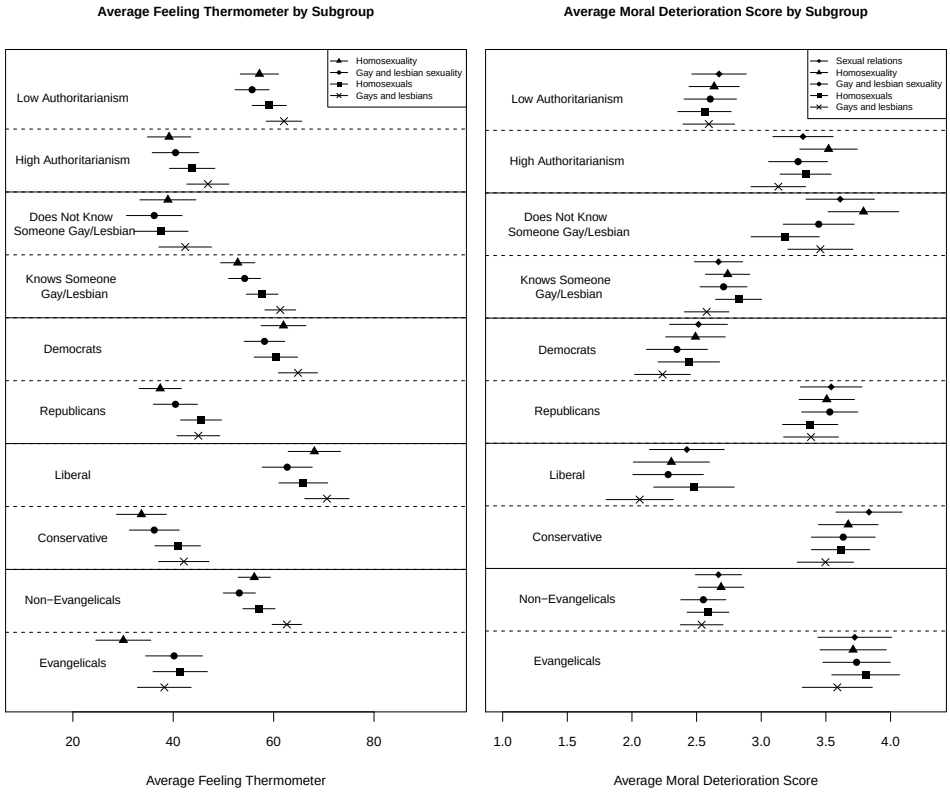
This code produces the subgroup plot in Figure 1.

```
> meanci <- function(var){
+   m <- mean(var, na.rm= T)
+   se <- sd(var, na.rm = T)/sqrt(length(var[is.na(var) == F]))
+   cil <- m - 1.96*se
+   ciu <- m + 1.96*se
+   c(m, cil, ciu)
+ }
>
> pdf("subs.pdf", width = 10, height = 8.5)
>
> ## Subgroup labels
> ts <- c("Evangelicals", "Non-Evangelicals",
+         "Conservative", "Liberal",
+         "Republicans", "Democrats",
+         "Knows Someone \n Gay/Lesbian",
+         "Does Not Know \n Someone Gay/Lesbian",
+         "High Authoritarianism", "Low Authoritarianism")
> par(mfrow=c(1,2), mar = c(4, .5, 4, .5)) # create two plots
>
> ## feeling thermometer scores
> ms <- rbind(meanci(subset(constr$ft.gayles, constr$evangelical == 1)),
+        meanci(subset(constr$ft.homosexual, constr$evangelical == 1)),
+        meanci(subset(constr$ft.glty, constr$evangelical == 1)),
+        meanci(subset(constr$ft.homosexuality, constr$evangelical == 1)),
+        meanci(subset(constr$ft.gayles, constr$evangelical == 0)),
+        meanci(subset(constr$ft.homosexual, constr$evangelical == 0)),
+        meanci(subset(constr$ft.glty, constr$evangelical == 0)),
+        meanci(subset(constr$ft.homosexuality, constr$evangelical == 0)),
+        meanci(subset(constr$ft.gayles, constr$con == 1)),
+        meanci(subset(constr$ft.homosexual, constr$con == 1)),
+        meanci(subset(constr$ft.glty, constr$con == 1)),
```

```
+        meanci(subset(constr$ft.homosexuality, constr$con == 1)),
+        meanci(subset(constr$ft.gayles, constr$lib == 1)),
+        meanci(subset(constr$ft.homosexual, constr$lib == 1)),
+        meanci(subset(constr$ft.glty, constr$lib == 1)),
+        meanci(subset(constr$ft.homosexuality, constr$lib == 1)),
+        meanci(subset(constr$ft.gayles, constr$rep == 1)),
+        meanci(subset(constr$ft.homosexual, constr$rep == 1)),
+        meanci(subset(constr$ft.glty, constr$rep == 1)),
+        meanci(subset(constr$ft.homosexuality, constr$rep == 1)),
+        meanci(subset(constr$ft.gayles, constr$dem == 1)),
+        meanci(subset(constr$ft.homosexual, constr$dem == 1)),
+        meanci(subset(constr$ft.glty, constr$dem == 1)),
+        meanci(subset(constr$ft.homosexuality, constr$dem == 1)),
+        meanci(subset(constr$ft.gayles, constr$knowgaylesyes == 1)),
+        meanci(subset(constr$ft.homosexual, constr$knowgaylesyes == 1)),
+        meanci(subset(constr$ft.glty, constr$knowgaylesyes == 1)),
+        meanci(subset(constr$ft.homosexuality, constr$knowgaylesyes == 1)),
+        meanci(subset(constr$ft.gayles, constr$knowgaylesyes == 0)),
+        meanci(subset(constr$ft.homosexual, constr$knowgaylesyes == 0)),
+        meanci(subset(constr$ft.glty, constr$knowgaylesyes == 0)),
+        meanci(subset(constr$ft.homosexuality, constr$knowgaylesyes == 0)),
+        meanci(subset(constr$ft.gayles, constr$auth.s > mean(constr$auth.s, na.rm = T))),
+        meanci(subset(constr$ft.homosexual, constr$auth.s > mean(constr$auth.s, na.rm = T))),
+        meanci(subset(constr$ft.glty, constr$auth.s > mean(constr$auth.s, na.rm = T))),
+        meanci(subset(constr$ft.homosexuality, constr$auth.s > mean(constr$auth.s, na.rm = T))),
+        meanci(subset(constr$ft.gayles, constr$auth.s < mean(constr$auth.s, na.rm = T))),
+        meanci(subset(constr$ft.homosexual, constr$auth.s < mean(constr$auth.s, na.rm = T))),
+        meanci(subset(constr$ft.glty, constr$auth.s < mean(constr$auth.s, na.rm = T))),
+        meanci(subset(constr$ft.homosexuality, constr$auth.s < mean(constr$auth.s, na.rm = T))))
> plot(ms[,1], 1:nrow(ms),
+      pch = c(4, 15, 16, 17), ylab ="", yaxt="n",
+      xlim = c(10, 95),
+      xlab= "Average Feeling Thermometer", cex.lab =.8,
+      cex.axis=.8,cex.main=.8,
+      main = "Average Feeling Thermometer by Subgroup")
> for(i in 1:nrow(ms)){
+   lines(ms[i, 2:3], c(i, i))
+ }
> abline(h=seq(4.5, 39.5, 4), lty = 2)
> abline(h=seq(8.5, 32.5, 8))
> legend("topright",pch = rev(c(4, 15, 16, 17)), lty=1, rev(c("Gays and lesbians",
+                            "Homosexuals",
+                            "Gay and lesbian sexuality",
+                            "Homosexuality")), cex=.6,
+        box.lwd = 0, bg="white")
> text(20, seq(2.5, 46.5, 4), ts, cex = .75)
>
> ## Moral deterioration
> tms <- rbind(meanci(subset(constr$tmd.gayles, constr$evangelical == 1)),
+        meanci(subset(constr$tmd.homosexual, constr$evangelical == 1)),
+        meanci(subset(constr$tmd.glty, constr$evangelical == 1)),
+        meanci(subset(constr$tmd.homosexuality, constr$evangelical == 1)),
+        meanci(subset(constr$tmd.sex, constr$evangelical == 1)),
+        meanci(subset(constr$tmd.gayles, constr$evangelical == 0)),
+        meanci(subset(constr$tmd.homosexual, constr$evangelical == 0)),
+        meanci(subset(constr$tmd.glty, constr$evangelical == 0)),
+        meanci(subset(constr$tmd.homosexuality, constr$evangelical == 0)),
+        meanci(subset(constr$tmd.sex, constr$evangelical == 0)),
+        meanci(subset(constr$tmd.gayles, constr$con == 1)),
+        meanci(subset(constr$tmd.homosexual, constr$con == 1)),
+        meanci(subset(constr$tmd.glty, constr$con == 1)),
+        meanci(subset(constr$tmd.homosexuality, constr$con == 1)),
+        meanci(subset(constr$tmd.sex, constr$con == 1)),
+        meanci(subset(constr$tmd.gayles, constr$lib == 1)),
+        meanci(subset(constr$tmd.homosexual, constr$lib == 1)),
+        meanci(subset(constr$tmd.glty, constr$lib == 1)),
+        meanci(subset(constr$tmd.homosexuality, constr$lib == 1)),
+        meanci(subset(constr$tmd.sex, constr$lib == 1)),
+        meanci(subset(constr$tmd.gayles, constr$rep == 1)),
+        meanci(subset(constr$tmd.homosexual, constr$rep == 1)),
+        meanci(subset(constr$tmd.glty, constr$rep == 1)),
+        meanci(subset(constr$tmd.homosexuality, constr$rep == 1)),
+        meanci(subset(constr$tmd.sex, constr$rep == 1)),
+        meanci(subset(constr$tmd.gayles, constr$dem == 1)),
+        meanci(subset(constr$tmd.homosexual, constr$dem == 1)),
+        meanci(subset(constr$tmd.glty, constr$dem == 1)),
+        meanci(subset(constr$tmd.homosexuality, constr$dem == 1)),
+        meanci(subset(constr$tmd.sex, constr$dem == 1)),
+        meanci(subset(constr$tmd.gayles, constr$knowgaylesyes == 1)),
+        meanci(subset(constr$tmd.homosexual, constr$knowgaylesyes == 1)),
+        meanci(subset(constr$tmd.glty, constr$knowgaylesyes == 1)),
+        meanci(subset(constr$tmd.homosexuality, constr$knowgaylesyes == 1)),
+        meanci(subset(constr$tmd.sex, constr$knowgaylesyes == 1)),
+        meanci(subset(constr$tmd.gayles, constr$knowgaylesyes == 0)),
```

```
+        meanci(subset(constr$tmd.homosexual, constr$knowgaylesyes == 0)),
+        meanci(subset(constr$tmd.glty, constr$knowgaylesyes == 0)),
+        meanci(subset(constr$tmd.homosexuality, constr$knowgaylesyes == 0)),
+        meanci(subset(constr$tmd.sex, constr$knowgaylesyes == 0)),
+        meanci(subset(constr$tmd.gayles, constr$auth.s > mean(constr$auth.s, na.rm = T))),
+        meanci(subset(constr$tmd.homosexual, constr$auth.s > mean(constr$auth.s, na.rm = T))),
+        meanci(subset(constr$tmd.glty, constr$auth.s > mean(constr$auth.s, na.rm = T))),
+        meanci(subset(constr$tmd.homosexuality, constr$auth.s > mean(constr$auth.s, na.rm = T))),
+        meanci(subset(constr$tmd.sex, constr$auth.s > mean(constr$auth.s, na.rm = T))),
+        meanci(subset(constr$tmd.gayles, constr$auth.s < mean(constr$auth.s, na.rm = T))),
+        meanci(subset(constr$tmd.homosexual, constr$auth.s < mean(constr$auth.s, na.rm = T))),
+        meanci(subset(constr$tmd.glty, constr$auth.s < mean(constr$auth.s, na.rm = T))),
+        meanci(subset(constr$tmd.homosexuality, constr$auth.s < mean(constr$auth.s, na.rm = T))),
+        meanci(subset(constr$tmd.sex, constr$auth.s < mean(constr$auth.s, na.rm = T))))
> plot(tms[,1], 1:nrow(tms),
+      pch = c(4, 15, 16, 17, 18), ylab ="", yaxt="n",
+      xlim = c(1, 4.3),
+      xlab= "Average Moral Deterioration Score", cex.lab =.8,
+      cex.axis=.8,cex.main=.8,
+      main = "Average Moral Deterioration Score by Subgroup")
> for(i in 1:nrow(tms)){
+   lines(tms[i, 2:3], c(i, i))
+ }
> abline(h=seq(5.5, 47.5, 5), lty = 2)
> abline(h=seq(10.5, 40.5, 10))
> legend("topright",pch = rev(c(4, 15, 16, 17, 18)), lty=1, rev(c("Gays and lesbians",
+                            "Homosexuals",
+                            "Gay and lesbian sexuality",
+                            "Homosexuality",
+                            "Sexual relations")), cex=.6,
+        box.lwd = 0, bg="white")
> text(1.5, seq(3, 60, 5), ts, cex = .75)
> dev.off()

pdf
  2
```

Figure 1: Attitudes by Population Subgroup and Terminology



Note: Figure displays raw means and 95% confidence intervals from within each subgroup.

Online Appendix Analyses

Descriptive Statistics for Online Appendix Table A1.

```
> meanse <- function(var){
+ m <- mean(var, na.rm= T)
+ se <- sd(var, na.rm = T)/sqrt(length(var[is.na(var) == F]))
+ c(m, se)
+ }
>
> round(rbind(meanse(constr$age),
+ meanse(constr$female),
+ meanse(constr$college),
+ meanse(constr$whitenh),
+ meanse(constr$blacknh),
+ meanse(constr$hisp),
+ meanse(constr$dem),
+ meanse(constr$rep),
+ meanse(constr$evangelical),
+ meanse(constr$knowgaylesyes),
+ meanse(constr$auth.s)), digits = 3)[,1]

 [1] 46.878  0.555  0.359  0.727  0.123  0.069  0.431  0.423
 [9]  0.284  0.722  0.534

> meanse(constr$incn) # corresponds to 40-59

[1] 4.96149733 0.07839784
```

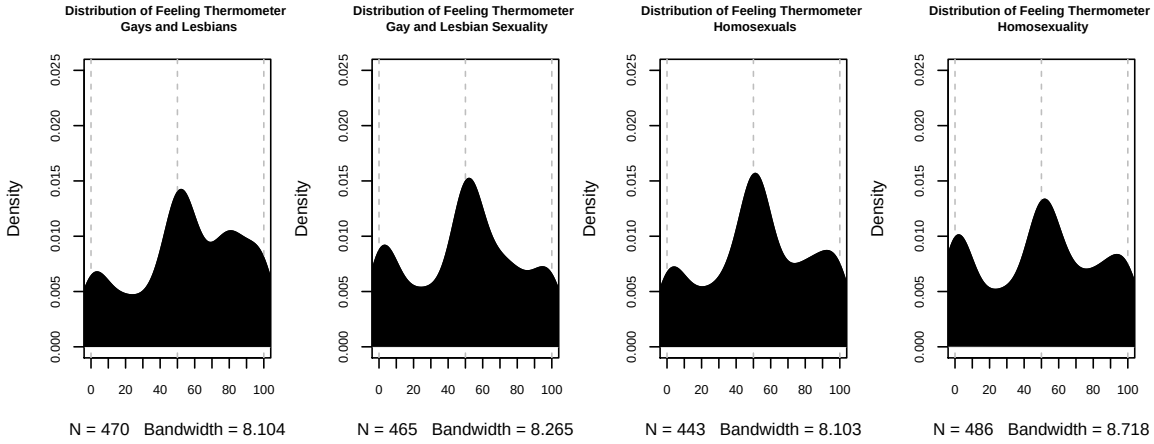
Figure A1: Distributions of Outcomes by Terminology

```
> ## Feeling Thermometers
> pdf("sexualitydis.pdf", width = 7.5, height = 3)
> par(mfrow = c(1,4), mar = c(4, 4, 4, 1))
>
> plot(density(constr$ft.gayles, na.rm = T),
+      xlim = c(0, 100), ylim = c(0, 0.025),
+      main = "Distribution of Feeling Thermometer \n Gays and Lesbians",
+      cex.main = .8, cex.axis = .8, xaxt = "n")
> axis(1, seq(0, 100, 10), seq(0, 100, 10), cex.axis = .8)
> abline(v=c(0, 50, 100), lty = 2, col = "gray")
> polygon(density(constr$ft.gayles, na.rm = T), col = "black")
>
> plot(density(constr$ft.glty, na.rm = T),
+      xlim = c(0, 100), ylim = c(0, 0.025),
+      main = "Distribution of Feeling Thermometer \n Gay and Lesbian Sexuality",
+      cex.main = .8, cex.axis = .8, xaxt = "n")
> axis(1, seq(0, 100, 10), seq(0, 100, 10), cex.axis = .8)
> abline(v=c(0, 50, 100), lty = 2, col = "gray")
> polygon(density(constr$ft.glty, na.rm = T), col = "black")
>
> plot(density(constr$ft.homosexual, na.rm = T),
+      xlim = c(0, 100), ylim = c(0, 0.025),
+      main = "Distribution of Feeling Thermometer \n Homosexuals",
+      cex.main = .8, cex.axis = .8, xaxt = "n")
> axis(1, seq(0, 100, 10), seq(0, 100, 10), cex.axis = .8)
> abline(v=c(0, 50, 100), lty = 2, col = "gray")
> polygon(density(constr$ft.homosexual, na.rm = T), col = "black")
>
> plot(density(constr$ft.homosexuality, na.rm = T),
+      xlim = c(0, 100), ylim = c(0, 0.025),
+      main = "Distribution of Feeling Thermometer \n Homosexuality",
+      cex.main = .8, cex.axis = .8, xaxt = "n")
> axis(1, seq(0, 100, 10), seq(0, 100, 10), cex.axis = .8)
> abline(v=c(0, 50, 100), lty = 2, col = "gray")
> polygon(density(constr$ft.homosexuality, na.rm = T), col = "black")
> dev.off()

pdf
  2
```

```
> ## Moral Deterioration
> mybarcov4s <- function(df, dfv, varlabel){
+   c.means <- data.frame(prop.table(table(dfv)))
+   colnames(c.means) <- c("group", "mean")
+   c.means$group <- c("Strongly Disagree", "Somewhat Disagree", "Neither", "Somewhat Agree", "Strongly Agree")
+   c.means$group <- factor(c.means$group, levels = c("Strongly Disagree", "Somewhat Disagree", "Neither", "Somewhat Agree", "Strongly Agree"))
+   n <- nrow(df)
+   ggplot(c.means, aes(x = c.means$group, y=c.means$mean)) +
+     geom_bar(stat = "identity") +
+     scale_fill_brewer() +
```

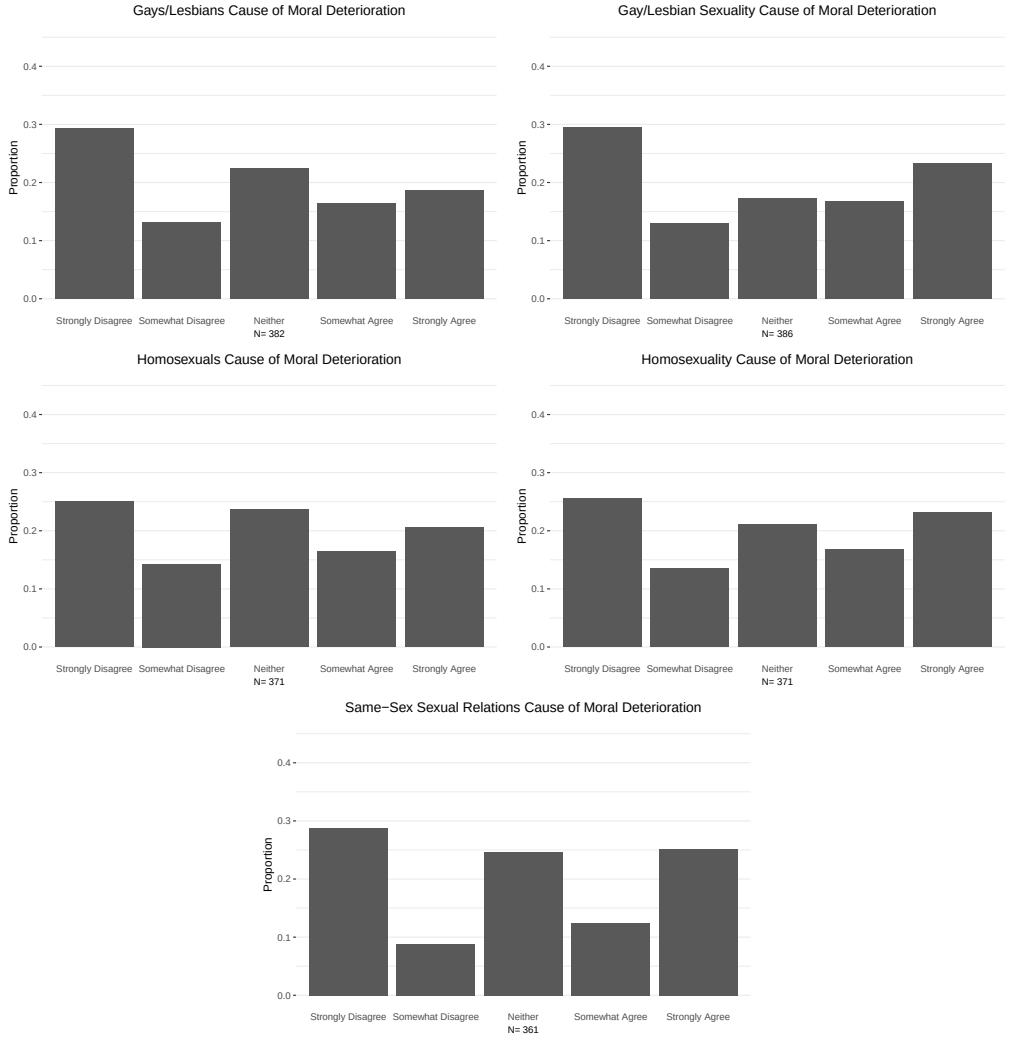
```
+     scale_y_continuous(limits = c(0, .45)) +
+        ggtitle(varlabel) +
+     labs(x = paste("N= ", n, sep=""), y = "Proportion") +
+     theme_bw() +
+     theme(plot.title = element_text(hjust = 0.5)) +
+      theme(axis.title.x = element_text(size = rel(.8))) +
+     theme(panel.border = element_blank(), panel.grid.major.x = element_blank(),
+           axis.ticks.x=element_blank())
+   wlab <- deparse(substitute(dfv))
+   wlab <- gsub("\\$","", wlab)
+   wlab <- gsub("\\.","", wlab)
+   ggsave(paste(wlab, "sexdistavg.pdf", sep=""), width = 6.5, height = 4.5)
+ }
>
> glty.con <- subset(constr, treat.hs == "Gay and Lesbian Sexuality")
> gayles.con <- subset(constr, treat.hs == "Gays and Lesbians")
> homosexual.con <- subset(constr, treat.hs == "Homosexuals")
> homosexuality.con <- subset(constr, treat.hs == "Homosexuality")
> sex.con <- subset(constr, treat.hs == "Sexual Relations")
>
> mybarcov4s(glty.con, glty.con$tmd.all, "Gay/Lesbian Sexuality Cause of Moral Deterioration")
> mybarcov4s(gayles.con, gayles.con$tmd.all, "Gays/Lesbians Cause of Moral Deterioration")
> mybarcov4s(homosexual.con, homosexual.con$tmd.all, "Homosexuals Cause of Moral Deterioration")
> mybarcov4s(homosexuality.con, homosexuality.con$tmd.all, "Homosexuality Cause of Moral Deterioration")
> mybarcov4s(sex.con, sex.con$tmd.all, "Same-Sex Sexual Relations Cause of Moral Deterioration")
```

Figure 2: Distribution of Feeling Thermometer Ratings



Note: August 2018 Lucid Survey Data.

Figure 3: Distribution of Moral Deterioration Attitudes



Note: August 2018 Lucid Survey Data.

This code repeats the main analysis for all respondents (Table A2).

```
> ## ANOVA: Any differences across wording?
> an.ft.all <- aov(con$ft.all ~ con$treat.ft)
> summary(an.ft.all)

               Df  Sum Sq Mean Sq F value  Pr(>F)
con$treat.ft    3   12872    4291   4.092 0.00659 **
Residuals    2121 2223717    1048
---
Signif. codes:  0 '***' 0.001 '**' 0.01 '*' 0.05 '.' 0.1 ' ' 1
10 observations deleted due to missingness

> an.tmd.all <- aov(con$tmd.all ~ con$treat.hs)
> summary(an.tmd.all)

               Df Sum Sq Mean Sq F value Pr(>F)
con$treat.hs    4      4   1.052    0.45  0.773
Residuals    2130   4985   2.340

> ############################
> ## Feeling thermometers
> ############################
>
> rbind(meanse(con$ft.gayles),
+ meanse(con$ft.homosexual),
+ meanse(con$ft.glty),
+ meanse(con$ft.homosexuality))

         [,1]     [,2]
[1,] 58.27850 1.348635
[2,] 55.76654 1.391949
[3,] 53.81989 1.427459
[4,] 51.64273 1.446065

> ############################
> ## Moral Deterioration
> ############################
>
> rbind(meanse(con$tmd.gayles),
+ meanse(con$tmd.homosexual),
+ meanse(con$tmd.glty),
+ meanse(con$tmd.homosexuality),
+ meanse(con$tmd.sex))

         [,1]       [,2]
[1,] 2.737209 0.07173646
[2,] 2.803695 0.07187425
[3,] 2.825688 0.07478580
[4,] 2.847775 0.07455546
[5,] 2.865526 0.07731920

> ############################
> ## n for each
> ############################
> c(whatn(con$ft.gayles),
+ whatn(con$ft.homosexual),
+ whatn(con$ft.glty),
+ whatn(con$ft.homosexuality))

[1] 535 514 533 543

> ## Moral Deterioration
> c(whatn(con$tmd.gayles),
+ whatn(con$tmd.homosexual),
+ whatn(con$tmd.glty),
+ whatn(con$tmd.homosexuality),
+ whatn(con$tmd.sex))

[1] 430 433 436 427 409
```

Replicate Figure 1 for Authoritarianism 1SD above/below mean

```
> pdf("subsapp.pdf", width = 10, height = 8.5)
>
> ## Subgroup labels
> ts <- c("Evangelicals", "Non-Evangelicals",
+         "Conservative", "Liberal",
+         "Republicans", "Democrats",
+         "Knows Someone \n Gay/Lesbian",
+         "Does Not Know \n Someone Gay/Lesbian",
```

```
+         "Very High \n Authoritarianism", "Very Low \n Authoritarianism")
> par(mfrow=c(1,2), mar = c(4, .5, 4, .5)) # create two plots
>
> ## feeling thermometer scores
> ms <- rbind(meanci(subset(constr$ft.gayles, constr$evangelical == 1)),
+       meanci(subset(constr$ft.homosexual, constr$evangelical == 1)),
+       meanci(subset(constr$ft.glty, constr$evangelical == 1)),
+       meanci(subset(constr$ft.homosexuality, constr$evangelical == 1)),
+       meanci(subset(constr$ft.gayles, constr$evangelical == 0)),
+       meanci(subset(constr$ft.homosexual, constr$evangelical == 0)),
+       meanci(subset(constr$ft.glty, constr$evangelical == 0)),
+       meanci(subset(constr$ft.homosexuality, constr$evangelical == 0)),
+       meanci(subset(constr$ft.gayles, constr$con == 1)),
+       meanci(subset(constr$ft.homosexual, constr$con == 1)),
+       meanci(subset(constr$ft.glty, constr$con == 1)),
+       meanci(subset(constr$ft.homosexuality, constr$con == 1)),
+       meanci(subset(constr$ft.gayles, constr$lib == 1)),
+       meanci(subset(constr$ft.homosexual, constr$lib == 1)),
+       meanci(subset(constr$ft.glty, constr$lib == 1)),
+       meanci(subset(constr$ft.homosexuality, constr$lib == 1)),
+       meanci(subset(constr$ft.gayles, constr$rep == 1)),
+       meanci(subset(constr$ft.homosexual, constr$rep == 1)),
+       meanci(subset(constr$ft.glty, constr$rep == 1)),
+       meanci(subset(constr$ft.homosexuality, constr$rep == 1)),
+       meanci(subset(constr$ft.gayles, constr$dem == 1)),
+       meanci(subset(constr$ft.homosexual, constr$dem == 1)),
+       meanci(subset(constr$ft.glty, constr$dem == 1)),
+       meanci(subset(constr$ft.homosexuality, constr$dem == 1)),
+       meanci(subset(constr$ft.gayles, constr$knowgaylesyes == 1)),
+       meanci(subset(constr$ft.homosexual, constr$knowgaylesyes == 1)),
+       meanci(subset(constr$ft.glty, constr$knowgaylesyes == 1)),
+       meanci(subset(constr$ft.homosexuality, constr$knowgaylesyes == 1)),
+       meanci(subset(constr$ft.gayles, constr$knowgaylesyes == 0)),
+       meanci(subset(constr$ft.homosexual, constr$knowgaylesyes == 0)),
+       meanci(subset(constr$ft.glty, constr$knowgaylesyes == 0)),
+       meanci(subset(constr$ft.homosexuality, constr$knowgaylesyes == 0)),
+       meanci(subset(constr$ft.gayles, constr$auth.s == 1)),
+       meanci(subset(constr$ft.homosexual, constr$auth.s == 1)),
+       meanci(subset(constr$ft.glty, constr$auth.s == 1)),
+       meanci(subset(constr$ft.homosexuality, constr$auth.s == 1)),

+       meanci(subset(constr$ft.gayles, constr$auth.s == 0)),
+       meanci(subset(constr$ft.homosexual, constr$auth.s == 0)),
+       meanci(subset(constr$ft.glty, constr$auth.s == 0)),
+       meanci(subset(constr$ft.homosexuality, constr$auth.s == 0)))
> plot(ms[,1], 1:nrow(ms),
+      pch = c(4, 15, 16, 17), ylab ="", yaxt="n",
+      xlim = c(0, 105),
+      xlab= "Average Feeling Thermometer", cex.lab =.8,
+      cex.axis=.8,cex.main=.8,
+      main = "Average Feeling Thermometer by Subgroup")
> for(i in 1:nrow(ms)){
+   lines(ms[i, 2:3], c(i, i))
+ }
> abline(h=seq(4.5, 43.5, 4), lty = 2)
> abline(h=seq(8.5, 32.5, 8))
> legend("topright",pch = rev(c(4, 15, 16, 17)), lty=1, rev(c("Gays and lesbians",
+                            "Homosexuals",
+                            "Gay and lesbian sexuality",
+                            "Homosexuality")), cex=.6,
+       box.lwd = 0, bg="white")
> text(12, seq(2.5, 46.5, 4), ts, cex = .75)
>
> ## Moral deterioration
> tms <- rbind(meanci(subset(constr$tmd.gayles, constr$evangelical == 1)),
+       meanci(subset(constr$tmd.homosexual, constr$evangelical == 1)),
+       meanci(subset(constr$tmd.glty, constr$evangelical == 1)),
+       meanci(subset(constr$tmd.homosexuality, constr$evangelical == 1)),
+       meanci(subset(constr$tmd.sex, constr$evangelical == 1)),
+       meanci(subset(constr$tmd.gayles, constr$evangelical == 0)),
+       meanci(subset(constr$tmd.homosexual, constr$evangelical == 0)),
+       meanci(subset(constr$tmd.glty, constr$evangelical == 0)),
+       meanci(subset(constr$tmd.homosexuality, constr$evangelical == 0)),
+       meanci(subset(constr$tmd.sex, constr$evangelical == 0)),
+       meanci(subset(constr$tmd.gayles, constr$con == 1)),
+       meanci(subset(constr$tmd.homosexual, constr$con == 1)),
+       meanci(subset(constr$tmd.glty, constr$con == 1)),
+       meanci(subset(constr$tmd.homosexuality, constr$con == 1)),
+       meanci(subset(constr$tmd.sex, constr$con == 1)),
+       meanci(subset(constr$tmd.gayles, constr$lib == 1)),
+       meanci(subset(constr$tmd.homosexual, constr$lib == 1)),
+       meanci(subset(constr$tmd.glty, constr$lib == 1)),
+       meanci(subset(constr$tmd.homosexuality, constr$lib == 1)),
+       meanci(subset(constr$tmd.sex, constr$lib == 1)),
```

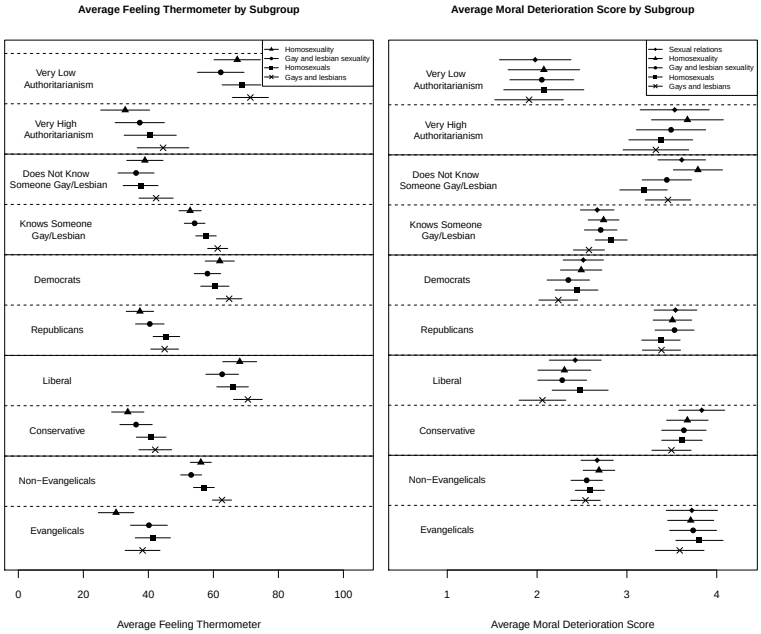
```
+        meanci(subset(constr$tmd.gayles, constr$rep == 1)),
+        meanci(subset(constr$tmd.homosexual, constr$rep == 1)),
+        meanci(subset(constr$tmd.glty, constr$rep == 1)),
+        meanci(subset(constr$tmd.homosexuality, constr$rep == 1)),
+        meanci(subset(constr$tmd.sex, constr$rep == 1)),
+        meanci(subset(constr$tmd.gayles, constr$dem == 1)),
+        meanci(subset(constr$tmd.homosexual, constr$dem == 1)),
+        meanci(subset(constr$tmd.glty, constr$dem == 1)),
+        meanci(subset(constr$tmd.homosexuality, constr$dem == 1)),
+        meanci(subset(constr$tmd.sex, constr$dem == 1)),
+        meanci(subset(constr$tmd.gayles, constr$knowgaylesyes == 1)),
+        meanci(subset(constr$tmd.homosexual, constr$knowgaylesyes == 1)),
+        meanci(subset(constr$tmd.glty, constr$knowgaylesyes == 1)),
+        meanci(subset(constr$tmd.homosexuality, constr$knowgaylesyes == 1)),
+        meanci(subset(constr$tmd.sex, constr$knowgaylesyes == 1)),
+        meanci(subset(constr$tmd.gayles, constr$knowgaylesyes == 0)),
+        meanci(subset(constr$tmd.homosexual, constr$knowgaylesyes == 0)),
+        meanci(subset(constr$tmd.glty, constr$knowgaylesyes == 0)),
+        meanci(subset(constr$tmd.homosexuality, constr$knowgaylesyes == 0)),
+        meanci(subset(constr$tmd.sex, constr$knowgaylesyes == 0)),
+         meanci(subset(constr$tmd.gayles, constr$auth.s == 1)),
+        meanci(subset(constr$tmd.homosexual, constr$auth.s == 1)),
+        meanci(subset(constr$tmd.glty, constr$auth.s == 1)),
+        meanci(subset(constr$tmd.homosexuality, constr$auth.s == 1)),
+        meanci(subset(constr$tmd.sex, constr$auth.s == 1)),
+        meanci(subset(constr$tmd.gayles, constr$auth.s == 0)),
+        meanci(subset(constr$tmd.homosexual, constr$auth.s == 0)),
+        meanci(subset(constr$tmd.glty, constr$auth.s == 0)),
+        meanci(subset(constr$tmd.homosexuality, constr$auth.s == 0)),
+        meanci(subset(constr$tmd.sex, constr$auth.s == 0)))
> plot(tms[,1], 1:nrow(tms),
+      pch = c(4, 15, 16, 17, 18), ylab ="", yaxt="n",
+      xlim = c(.5, 4.3),
+      xlab= "Average Moral Deterioration Score", cex.lab =.8,
+      cex.axis=.8,cex.main=.8,
+      main = "Average Moral Deterioration Score by Subgroup")
> for(i in 1:nrow(tms)){
+   lines(tms[i, 2:3], c(i, i))
+ }
> abline(h=seq(5.5, 47.5, 5), lty = 2)
> abline(h=seq(10.5, 40.5, 10))
> legend("topright",pch = rev(c(4, 15, 16, 17, 18)), lty=1, rev(c("Gays and lesbians",
+                             "Homosexuals",
+                             "Gay and lesbian sexuality",
+                             "Homosexuality",
+                             "Sexual relations")), cex=.6,
+        box.lwd = 0, bg="white")
> text(1, seq(3, 60, 5), ts, cex = .75)
> dev.off()

pdf
  2
```

```
> ## High Authoritarians who are/are not also "culturally conservative"
> pdf("subsapp2.pdf", width = 10, height = 5.5)
> par(mfrow=c(1,2), mar = c(4, .5, 4, .5)) # create two plots
> ms <- rbind(meanci(subset(constr$ft.gayles,
+                           constr$auth.s > mean(constr$auth.s, na.rm = T) & constr$evangelical == 1)),
+        meanci(subset(constr$ft.homosexual,
+                      constr$auth.s > mean(constr$auth.s, na.rm = T) & constr$evangelical == 1)),
+        meanci(subset(constr$ft.glty,
+                      constr$auth.s > mean(constr$auth.s, na.rm = T) & constr$evangelical == 1)),
+        meanci(subset(constr$ft.homosexuality,
+                      constr$auth.s > mean(constr$auth.s, na.rm = T) & constr$evangelical == 1)),
+       meanci(subset(constr$ft.gayles,
+                           constr$auth.s > mean(constr$auth.s, na.rm = T) & constr$knowgaylesyes == 0)),
+        meanci(subset(constr$ft.homosexual,
+                      constr$auth.s > mean(constr$auth.s, na.rm = T) & constr$knowgaylesyes == 0)),
+        meanci(subset(constr$ft.glty,
+                      constr$auth.s > mean(constr$auth.s, na.rm = T) & constr$knowgaylesyes == 0)),
+        meanci(subset(constr$ft.homosexuality,
+                      constr$auth.s > mean(constr$auth.s, na.rm = T) & constr$knowgaylesyes == 0)),
+       meanci(subset(constr$ft.gayles,
+                           constr$auth.s > mean(constr$auth.s, na.rm = T) & constr$evangelical == 0)),
+        meanci(subset(constr$ft.homosexual,
+                      constr$auth.s > mean(constr$auth.s, na.rm = T) & constr$evangelical == 0)),
+        meanci(subset(constr$ft.glty,
+                      constr$auth.s > mean(constr$auth.s, na.rm = T) & constr$evangelical == 0)),
+        meanci(subset(constr$ft.homosexuality,
+                      constr$auth.s > mean(constr$auth.s, na.rm = T) & constr$evangelical == 0)),
+       meanci(subset(constr$ft.gayles,
+                           constr$auth.s > mean(constr$auth.s, na.rm = T) & constr$knowgaylesyes == 1)),
```

```
+        meanci(subset(constr$ft.homosexual,
+                      constr$auth.s > mean(constr$auth.s, na.rm = T) & constr$knowgaylesyes == 1)),
+        meanci(subset(constr$ft.glty,
+                      constr$auth.s > mean(constr$auth.s, na.rm = T) & constr$knowgaylesyes == 1)),
+        meanci(subset(constr$ft.homosexuality,
+                      constr$auth.s > mean(constr$auth.s, na.rm = T) & constr$knowgaylesyes == 1)))
> plot(ms[,1], 1:nrow(ms),
+      pch = c(4, 15, 16, 17), ylab ="", yaxt="n",
+      xlim = c(0, 105),
+      xlab= "Average Feeling Thermometer", cex.lab =.8,
+      cex.axis=.8,cex.main=.8,
+      main = "Average Feeling Thermometer by Subgroup")
> for(i in 1:nrow(ms)){
+   lines(ms[i, 2:3], c(i, i))
+ }
> abline(h=seq(4.5, 43.5, 4), lty = 2)
> #abline(h=seq(8.5, 32.5, 8))
> legend("topright",pch = rev(c(4, 15, 16, 17)), lty=1, rev(c("Gays and lesbians",
+                           "Homosexuals",
+                           "Gay and lesbian sexuality",
+                           "Homosexuality")), cex=.6,
+       box.lwd = 0, bg="white")
> text(c(80, 80, 15, 15), seq(2.5, 46.5, 4), c("High Authoritarian,\n Evangelical",
+                                "High Authoritarian, \n Does Not Know Someone \n Gay/Lesbian ",
+                                "High Authoritarian,\n Non-Evangelical",
+                                "High Authoritarian, \n Knows Someone \n Gay/Lesbian"), cex = .75)
> tms <- rbind(meanci(subset(constr$tmd.gayles,
+                           constr$auth.s > mean(constr$auth.s, na.rm = T) & constr$evangelical == 1)),
+        meanci(subset(constr$tmd.homosexual,
+                      constr$auth.s > mean(constr$auth.s, na.rm = T) & constr$evangelical == 1)),
+        meanci(subset(constr$tmd.glty,
+                      constr$auth.s > mean(constr$auth.s, na.rm = T) & constr$evangelical == 1)),
+        meanci(subset(constr$tmd.homosexuality,
+                      constr$auth.s > mean(constr$auth.s, na.rm = T) & constr$evangelical == 1)),
+        meanci(subset(constr$tmd.sex,
+                      constr$auth.s > mean(constr$auth.s, na.rm = T) & constr$evangelical == 1)),
+       meanci(subset(constr$tmd.gayles,
+                           constr$auth.s > mean(constr$auth.s, na.rm = T) & constr$knowgaylesyes == 0)),
+        meanci(subset(constr$tmd.homosexual,
+                      constr$auth.s > mean(constr$auth.s, na.rm = T) & constr$knowgaylesyes == 0)),
+        meanci(subset(constr$tmd.glty,
+                      constr$auth.s > mean(constr$auth.s, na.rm = T) & constr$knowgaylesyes == 0)),
+        meanci(subset(constr$tmd.homosexuality,
+                      constr$auth.s > mean(constr$auth.s, na.rm = T) & constr$knowgaylesyes == 0)),
+       meanci(subset(constr$tmd.sex,
+                      constr$auth.s > mean(constr$auth.s, na.rm = T) & constr$knowgaylesyes == 0)),
+       meanci(subset(constr$tmd.gayles,
+                           constr$auth.s > mean(constr$auth.s, na.rm = T) & constr$evangelical == 0)),
+        meanci(subset(constr$tmd.homosexual,
+                      constr$auth.s > mean(constr$auth.s, na.rm = T) & constr$evangelical == 0)),
+        meanci(subset(constr$tmd.glty,
+                      constr$auth.s > mean(constr$auth.s, na.rm = T) & constr$evangelical == 0)),
+        meanci(subset(constr$tmd.homosexuality,
+                      constr$auth.s > mean(constr$auth.s, na.rm = T) & constr$evangelical == 0)),
+        meanci(subset(constr$tmd.sex,
+                      constr$auth.s > mean(constr$auth.s, na.rm = T) & constr$evangelical == 0)),
+       meanci(subset(constr$tmd.gayles,
+                           constr$auth.s > mean(constr$auth.s, na.rm = T) & constr$knowgaylesyes == 1)),
+        meanci(subset(constr$tmd.homosexual,
+                      constr$auth.s > mean(constr$auth.s, na.rm = T) & constr$knowgaylesyes == 1)),
+        meanci(subset(constr$tmd.glty,
+                      constr$auth.s > mean(constr$auth.s, na.rm = T) & constr$knowgaylesyes == 1)),
+        meanci(subset(constr$tmd.homosexuality,
+                      constr$auth.s > mean(constr$auth.s, na.rm = T) & constr$knowgaylesyes == 1)),
+       meanci(subset(constr$tmd.sex,
+                      constr$auth.s > mean(constr$auth.s, na.rm = T) & constr$knowgaylesyes == 1)))
> plot(tms[,1], 1:nrow(tms),
+      pch = c(4, 15, 16, 17, 18), ylab ="", yaxt="n",
+      xlim = c(.5, 5.5),
+      xlab= "Average Moral Deterioration Score", cex.lab =.8,
+      cex.axis=.8,cex.main=.8,
+      main = "Average Moral Deterioration Score by Subgroup")
> for(i in 1:nrow(tms)){
+   lines(tms[i, 2:3], c(i, i))
+ }
> abline(h=seq(5.5, 47.5, 5), lty = 2)
> #abline(h=seq(10.5, 40.5, 10))
> legend("topright",pch = rev(c(4, 15, 16, 17, 18)), lty=1, rev(c("Gays and lesbians",
+                            "Homosexuals",
+                            "Gay and lesbian sexuality",
+                            "Homosexuality",
+                            "Sexual relations")), cex=.6,
+        box.lwd = 0, bg="white")
> text(1.2, seq(3, 60, 5), c("High Authoritarian,\n Evangelicals",
```

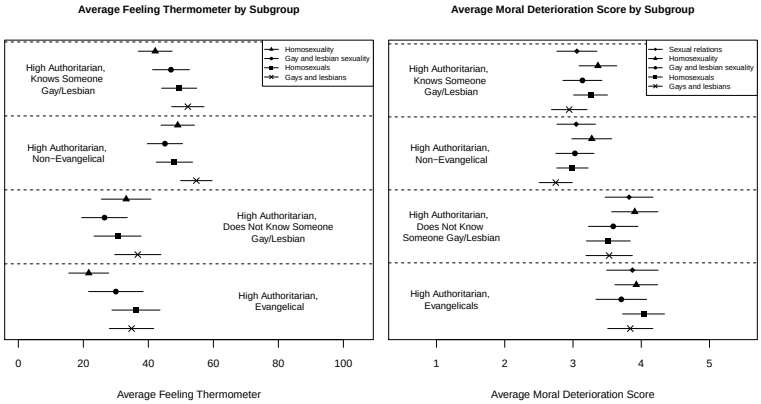
```
+                                "High Authoritarian, \n Does Not Know \n Someone Gay/Lesbian",
+                            "High Authoritarian,\n Non-Evangelical",
+                                "High Authoritarian, \n Knows Someone \n Gay/Lesbian"), cex = .75)
>
> dev.off()

pdf
  2
```

Figure 4: Attitudes by Population Subgroup and Terminology, Alternate Coding of Authoritarianism



Note: August 2018 Lucid Survey Data.

Figure 5: Attitudes by Population Subgroup and Terminology, High Authoritarians by Cultural Conservatism



Note: August 2018 Lucid Survey Data.