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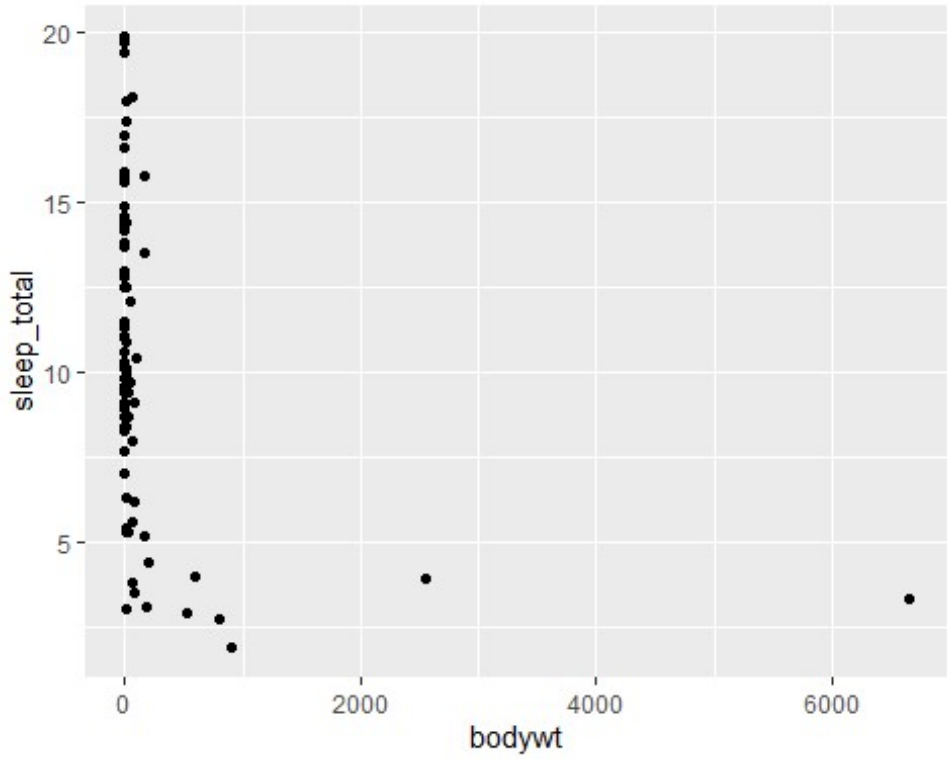
R Plots (ggplot)

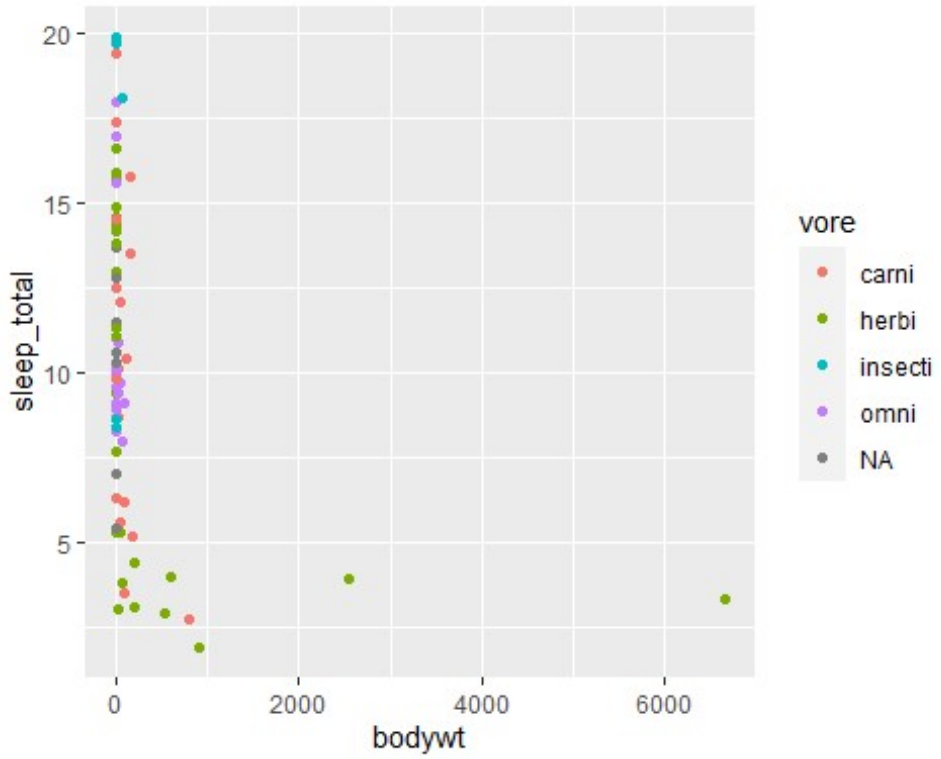
```
library(ggplot2)
```

#Scatterplot

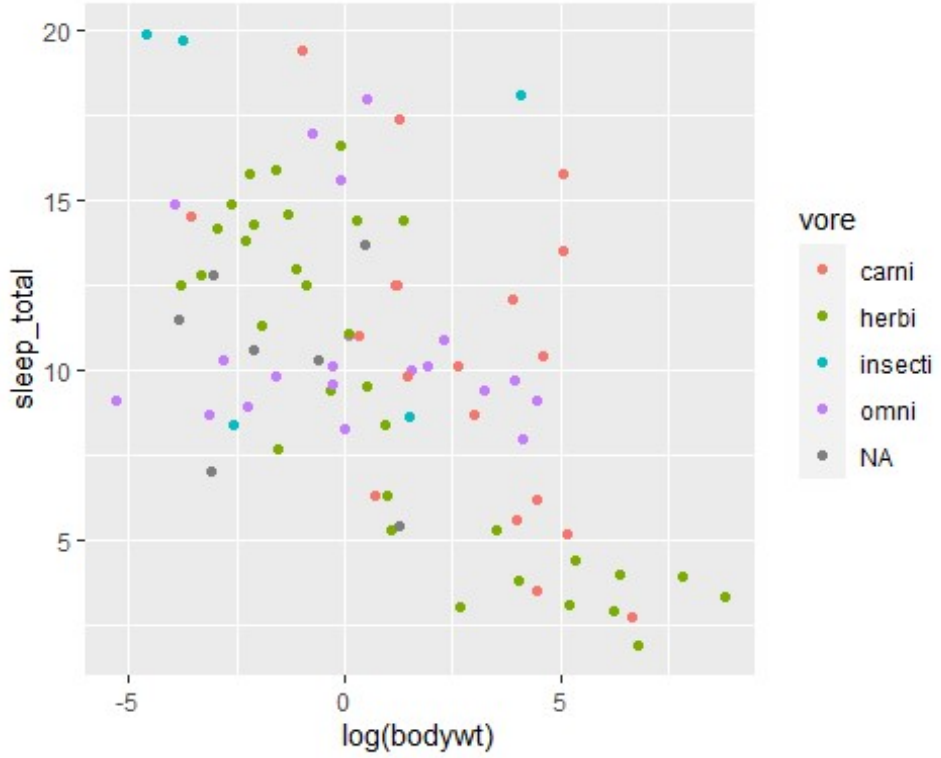
```
scatterplot<-ggplot(data=msleep, aes(x=bodywt, y=sleep_total))+geom_point()
scatterplot
```



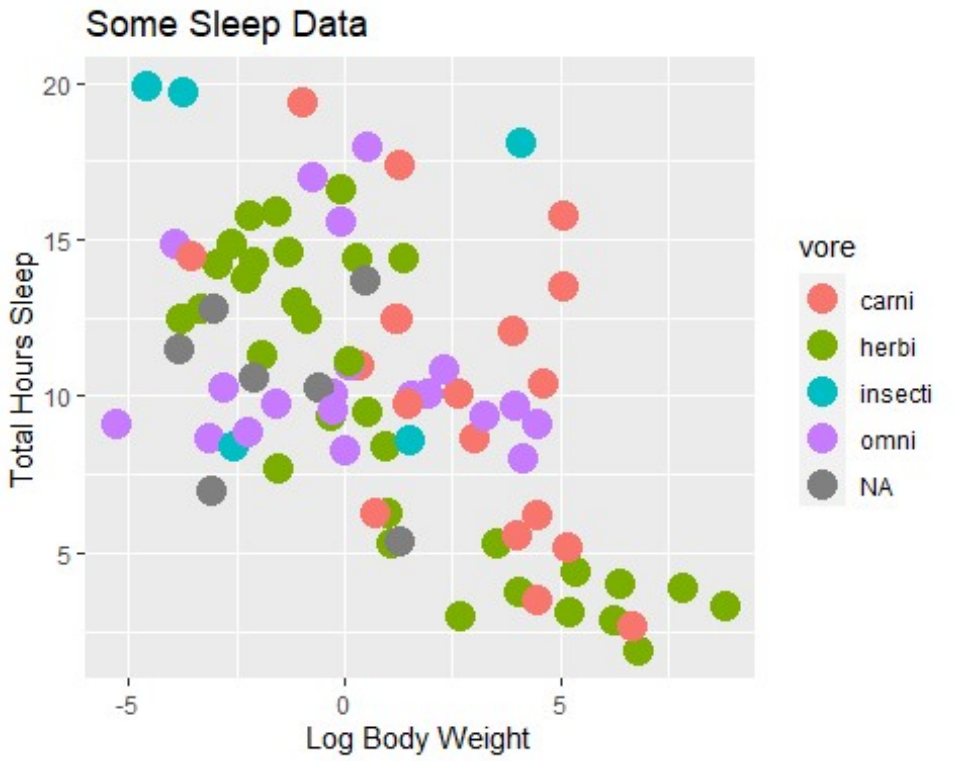

```
scatterplot<-ggplot(data=msleep, aes(x=bodywt, y=sleep_total, col=vore))+geom
_point()
scatterplot
```



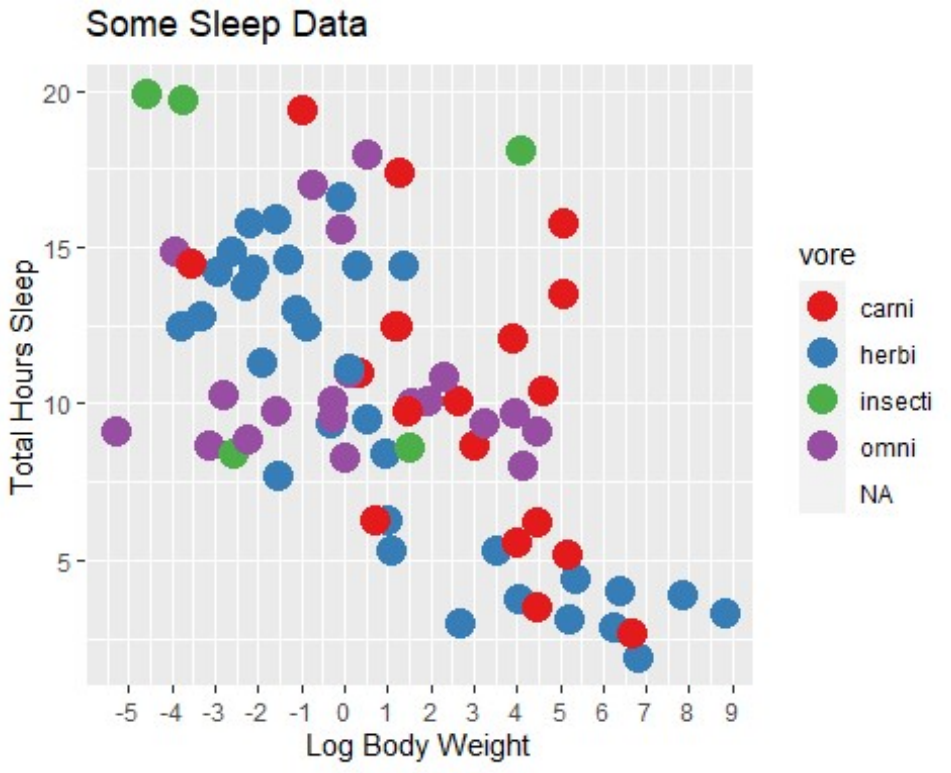

```
scatterplot<-ggplot(data=msleep, aes(x=log(bodywt), y=sleep_total, col=vore))
+geom_point()
scatterplot
```



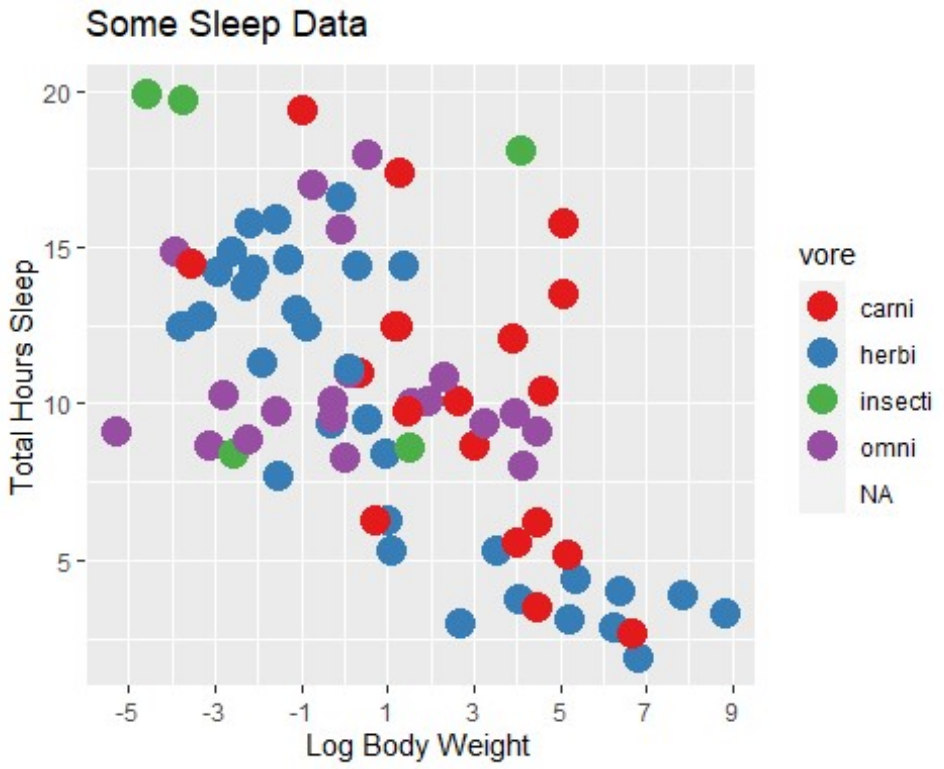
```
scatterplot<-scatterplot+geom_point(size=5)+xlab("Log Body Weight")+ylab("Tot
al Hours Sleep")+ggtitle("Some Sleep Data")
scatterplot
```




```
scatterplot+scale_colour_brewer(palette="Set1")+theme(plot.title=element_text
(vjust=+2))+scale_x_continuous(breaks=-5:10)

## Warning: Removed 7 rows containing missing values (geom_point).

## Warning: Removed 7 rows containing missing values (geom_point).
```

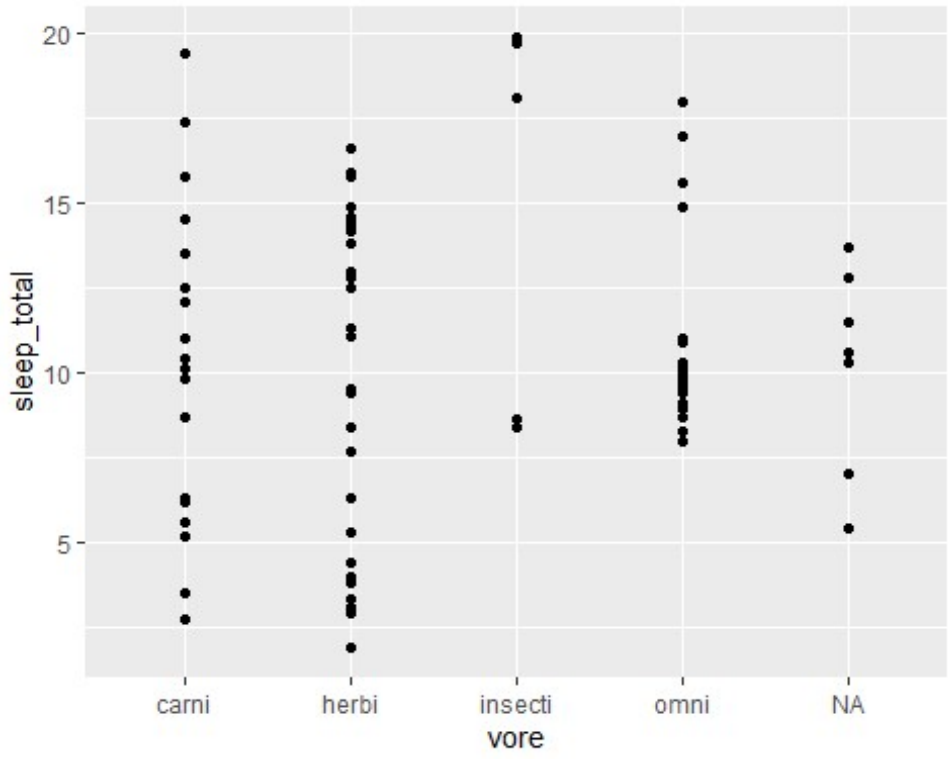



```
scatterplot+scale_colour_brewer(palette="Set1")+theme(plot.title=element_text
(vjust=+2))+scale_x_continuous(breaks=seq(-5, 10, 2))

## Warning: Removed 7 rows containing missing values (geom_point).

## Warning: Removed 7 rows containing missing values (geom_point).
```

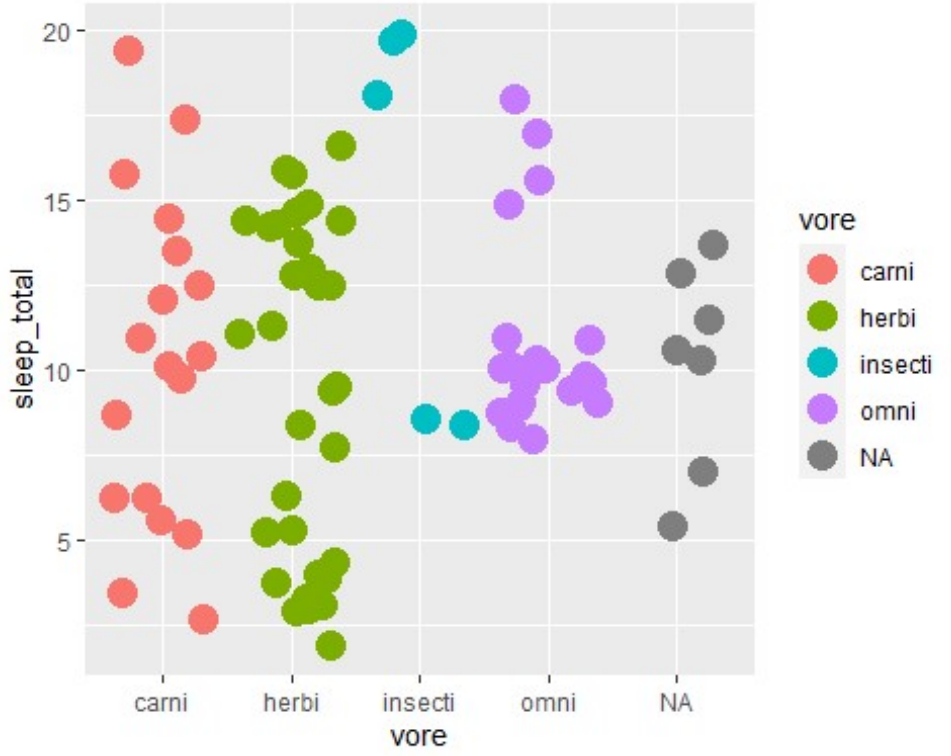


#Stripchart

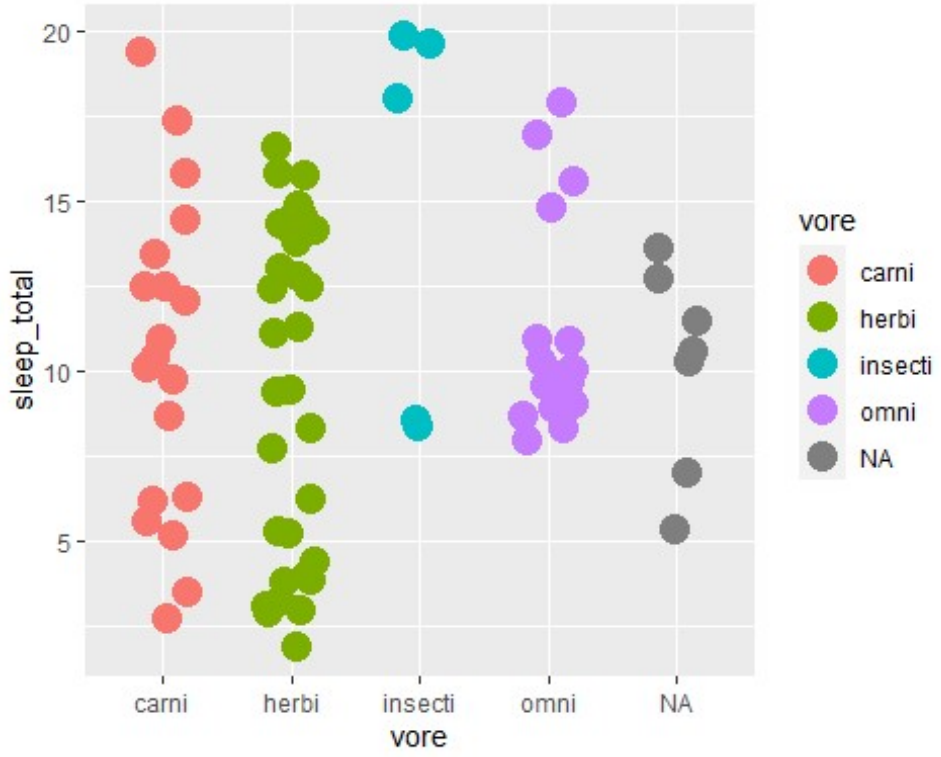
```
stripchart<-ggplot(msleep, aes(vore, sleep_total))+geom_point()
stripchart
```




```
stripchart<-ggplot(msleep,aes(vore,sleep_total,col=vore))+geom_point(size=5,p
osition="jitter")
stripchart
```

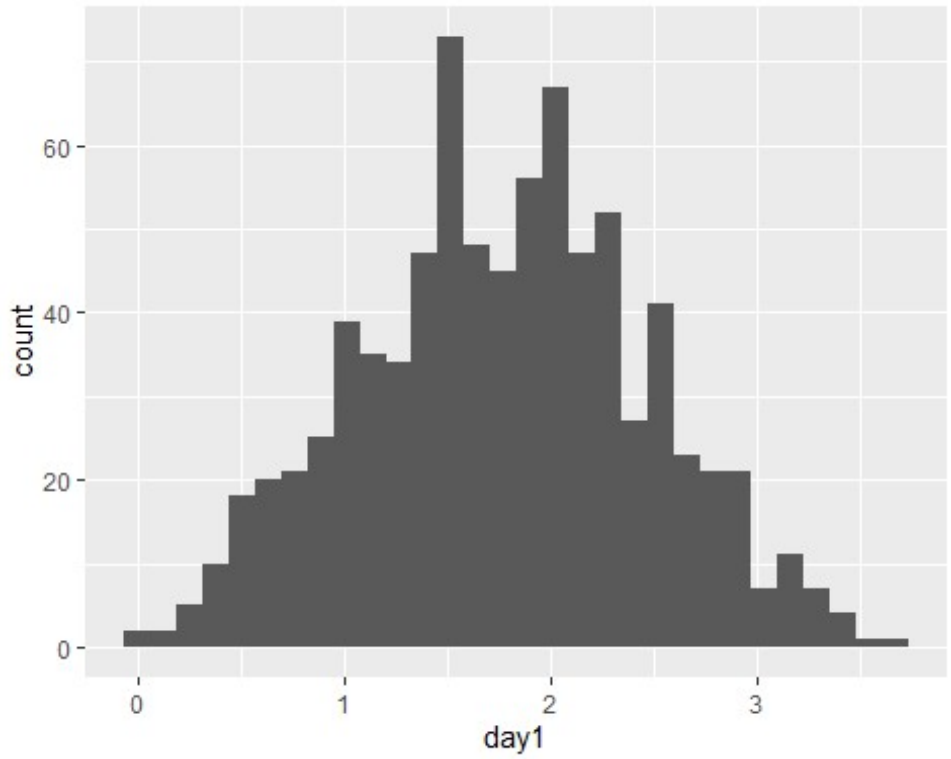


```
stripchart<-ggplot(msleep, aes(vore,sleep_total,col=vore))+geom_jitter(positi
on = position_jitter(width = 0.2),size=5)
stripchart
```

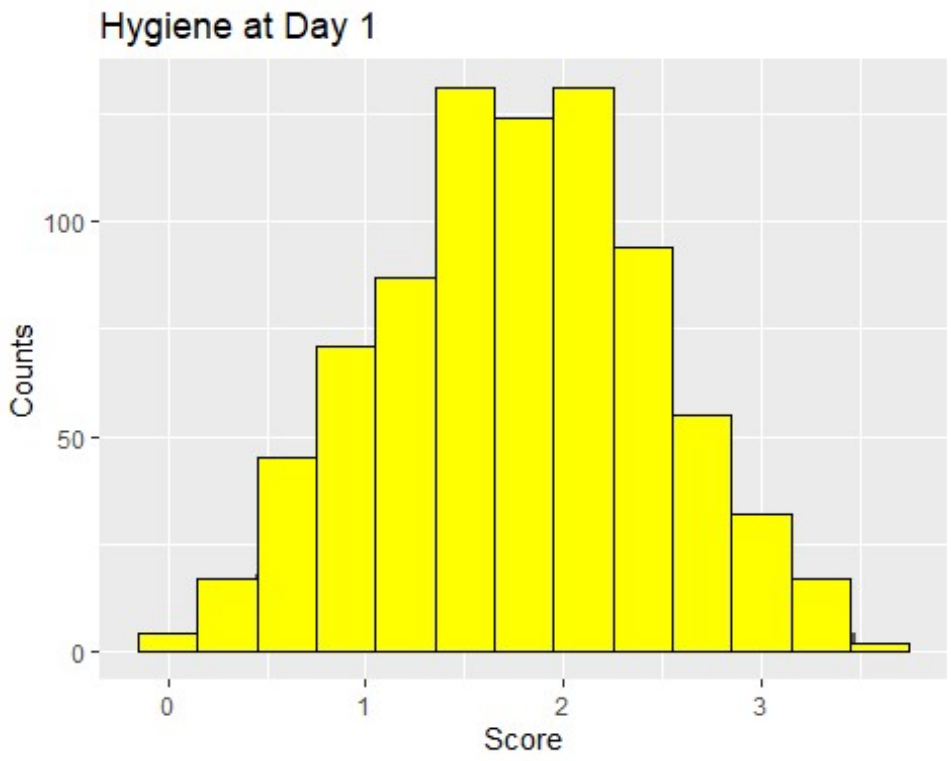


#Histogram

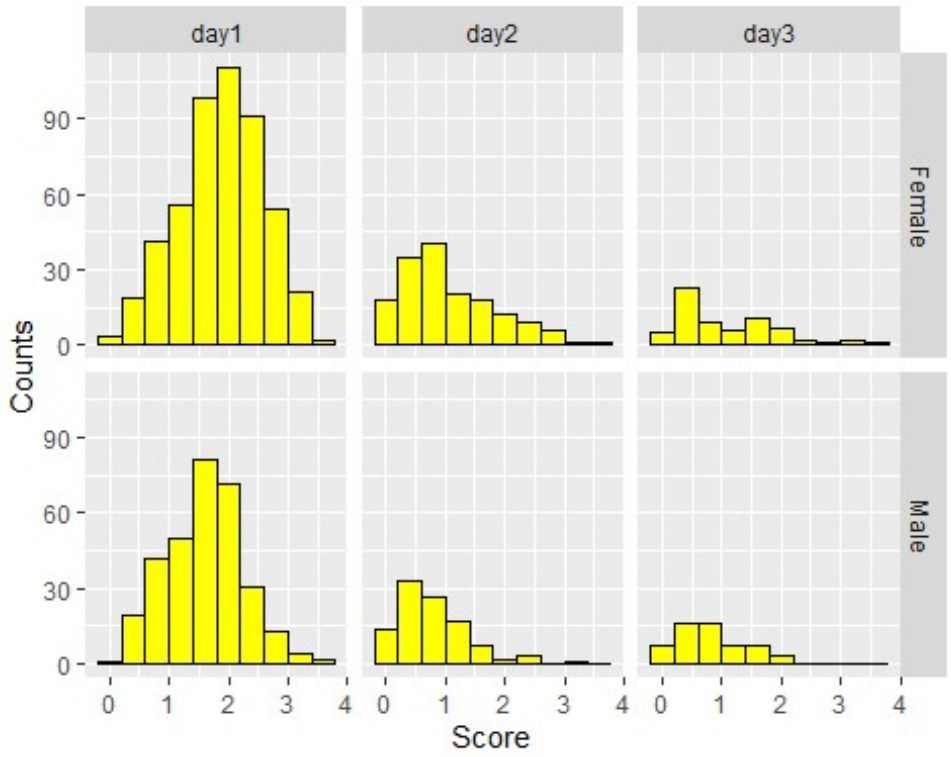
```
festival.data<-read.table("DownloadFestival.dat", sep="\t", header=T)

Day1Histogram <- ggplot(festival.data, aes(day1))+geom_histogram()
Day1Histogram

## `stat_bin()` using `bins = 30`. Pick better value with `binwidth`.
```




```
Day1Histogram <- Day1Histogram +geom_histogram(binwidth=0.3,color="black",fill="yellow")
Day1Histogram<- Day1Histogram +labs(x="Score", y="Counts")+ggtitle("Hygiene at Day 1")
Day1Histogram

## `stat_bin()` using `bins = 30`. Pick better value with `binwidth`.
```




```
library(reshape2)

## Warning: package 'reshape2' was built under R version 4.1.2

festival.data.stack<-melt(festival.data, id = c("ticknumb","gender"))
colnames(festival.data.stack)[3:4]<-c("day","score")

Histogram.3days<-ggplot(festival.data.stack,aes(score))+geom_histogram(binwid
th=0.4, color="black", fill="yellow")+labs(x="Score", y="Counts")+facet_grid(
gender~day)
Histogram.3days

## Warning: Removed 1233 rows containing non-finite values (stat_bin).
```

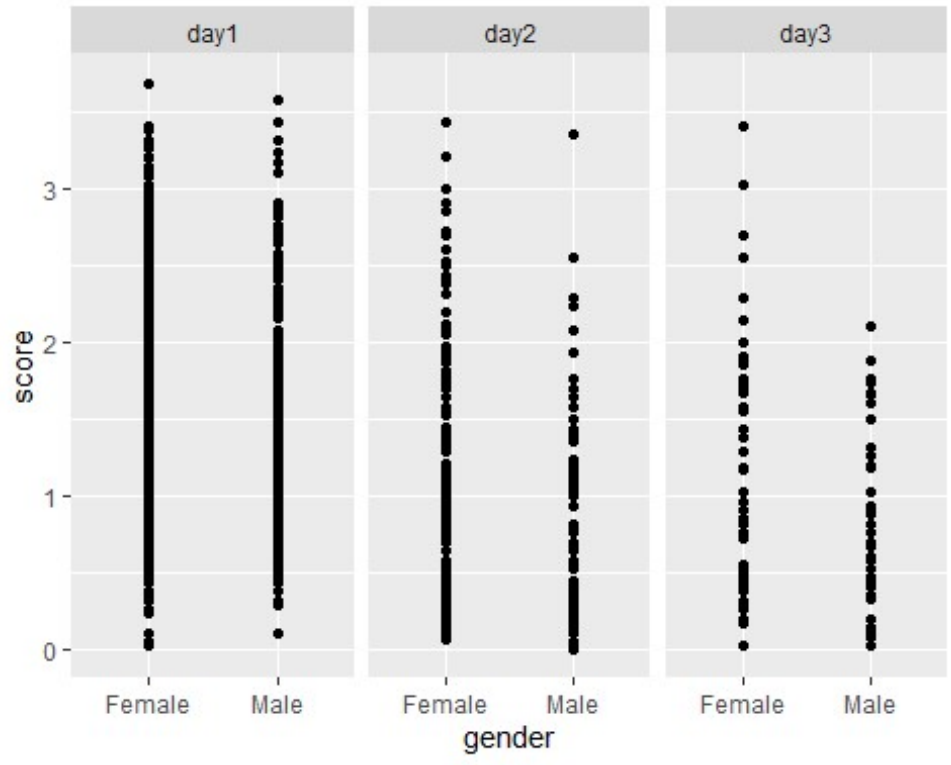



```
festival.data.stack<- festival.data.stack[!is.na(festival.data.stack$score),]
head(festival.data.stack)
```

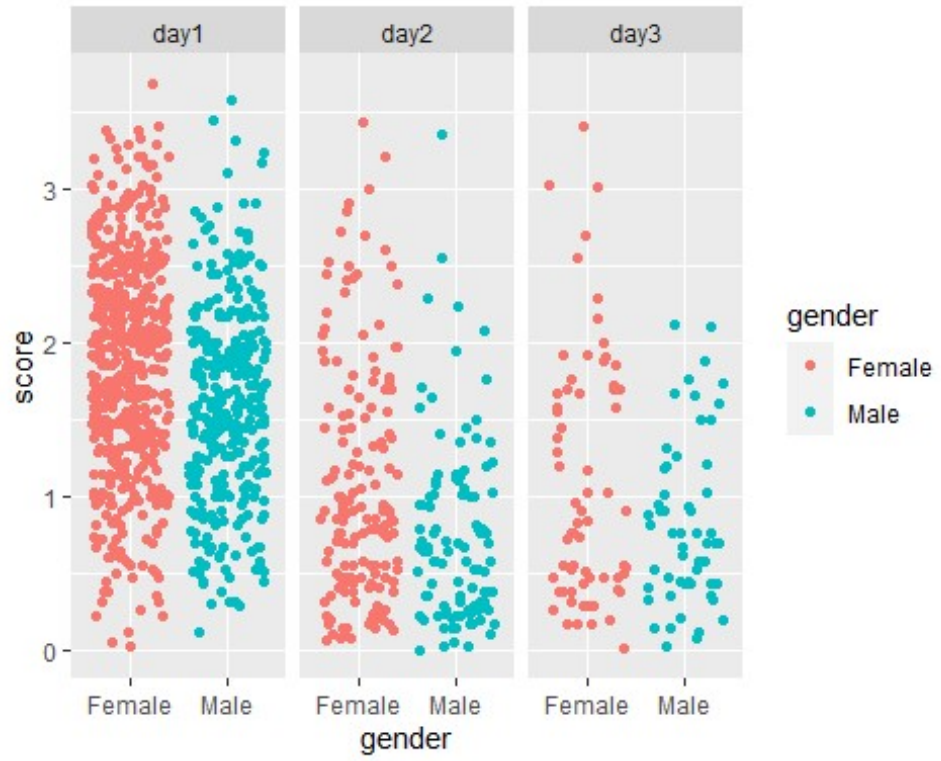
```
##   ticknumb gender  day score
## 1     2111   Male day1  2.64
## 2     2229 Female day1  0.97
## 3     2338   Male day1  0.84
## 4     2384 Female day1  3.03
## 5     2401 Female day1  0.88
## 6     2405   Male day1  0.85
```

#Stripchart

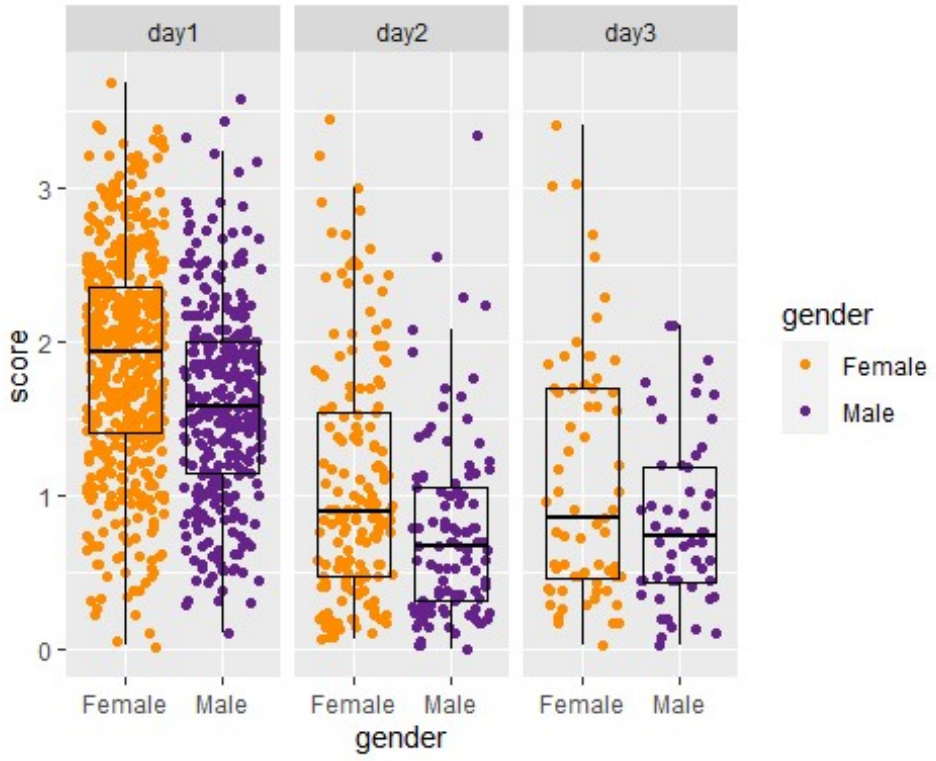
```
Scatterplot<-ggplot(festival.data.stack,aes(gender,score))+geom_point()+facet
_grid(~day)
Scatterplot
```




```
Scatterplot<-ggplot(festival.data.stack, aes(gender, score, colour=gender))+g
eom_point(position="jitter")+facet_grid(~day)
Scatterplot
```

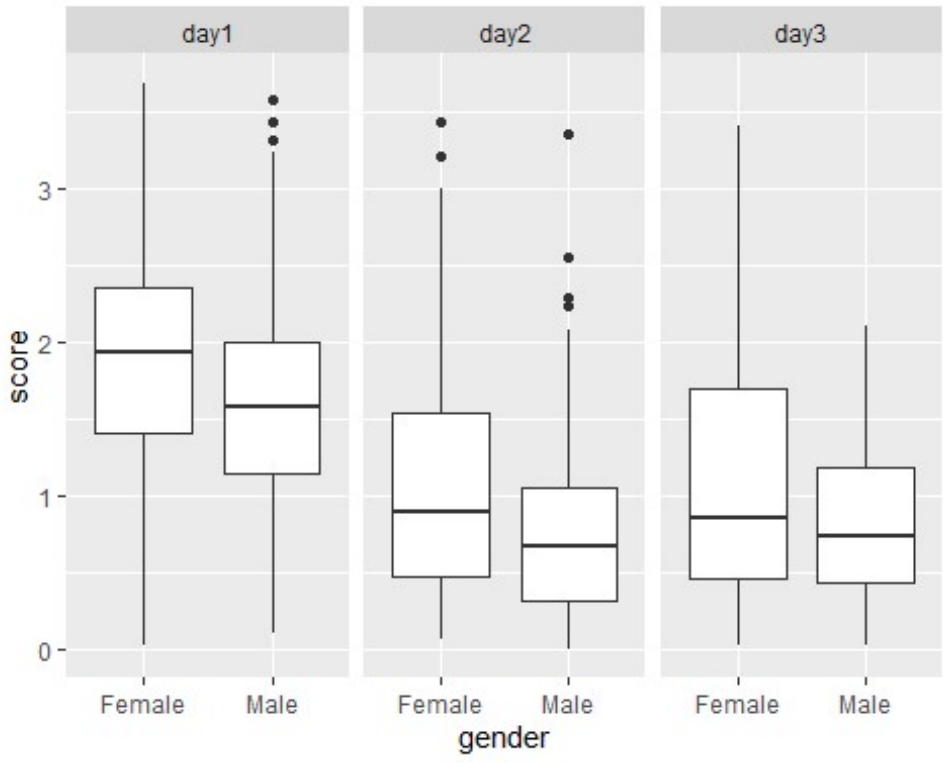


```
Scatterplot<-ggplot(festival.data.stack,aes(gender,score, colour=gender))+geo
m_point(position="jitter")+facet_grid(~day)+scale_colour_manual(values=c("dar
korange", "darkorchid4"))
Scatterplot+geom_boxplot(alpha=0, colour="black")
```

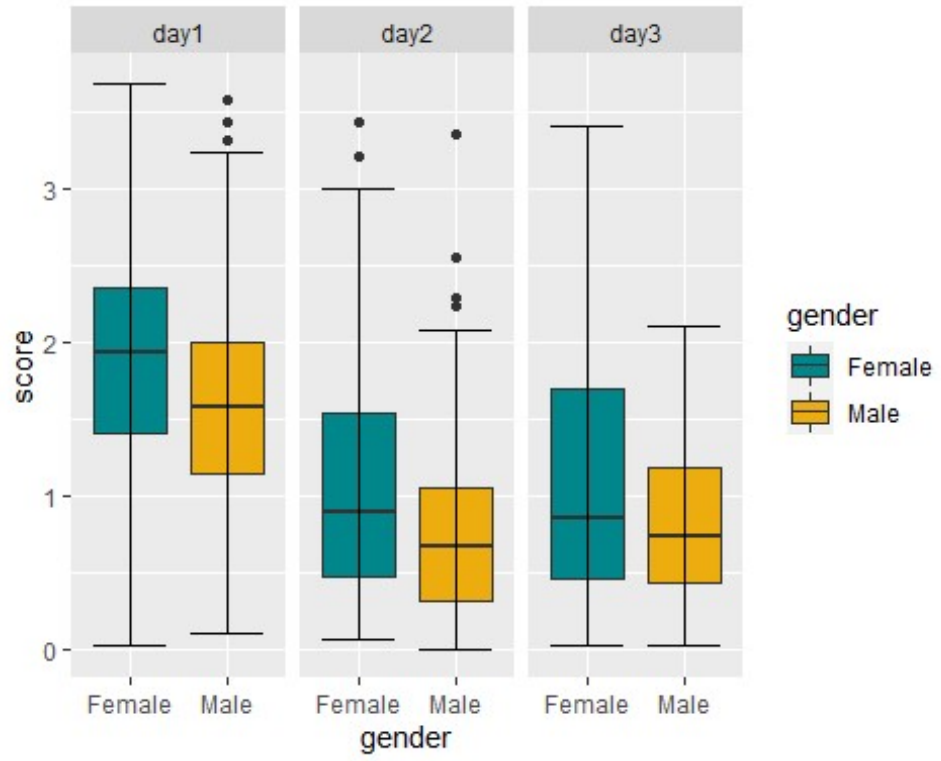


#Boxplot

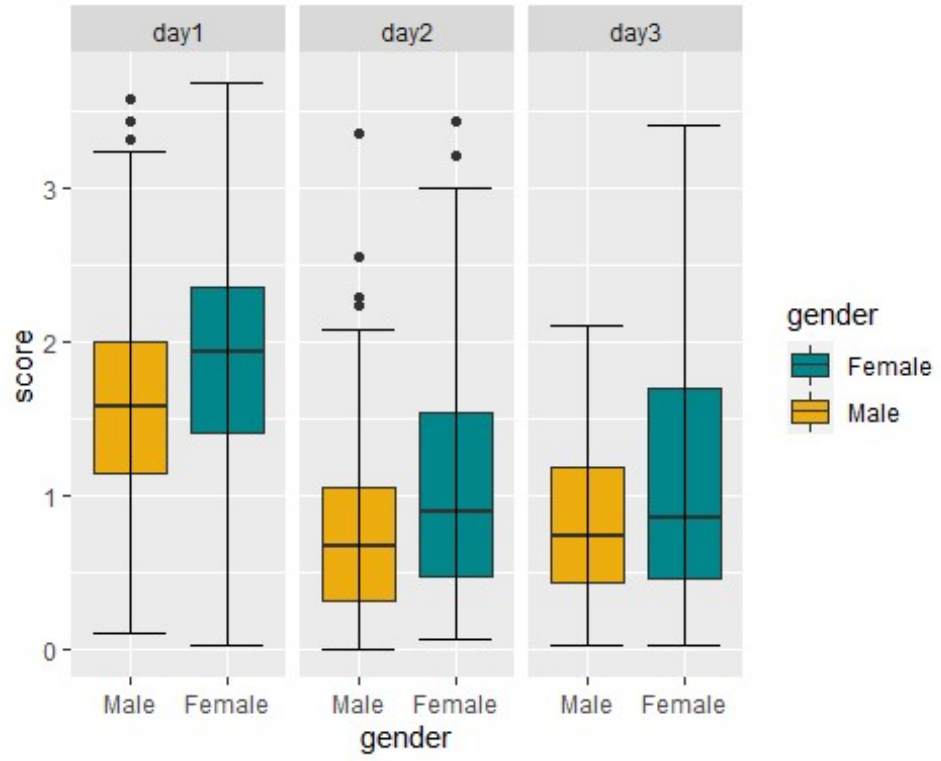
```
Boxplot<-ggplot(festival.data.stack, aes(gender,score))+geom_boxplot()+facet_
grid(~day)
Boxplot
```




```
Boxplot<-ggplot(festival.data.stack, aes(gender,score,fill=gender))+geom_boxp
lot()+stat_boxplot(geom="errorbar")+scale_fill_manual(values=c("turquoise4","
darkgoldenrod2"))+facet_grid(~day)
Boxplot
```

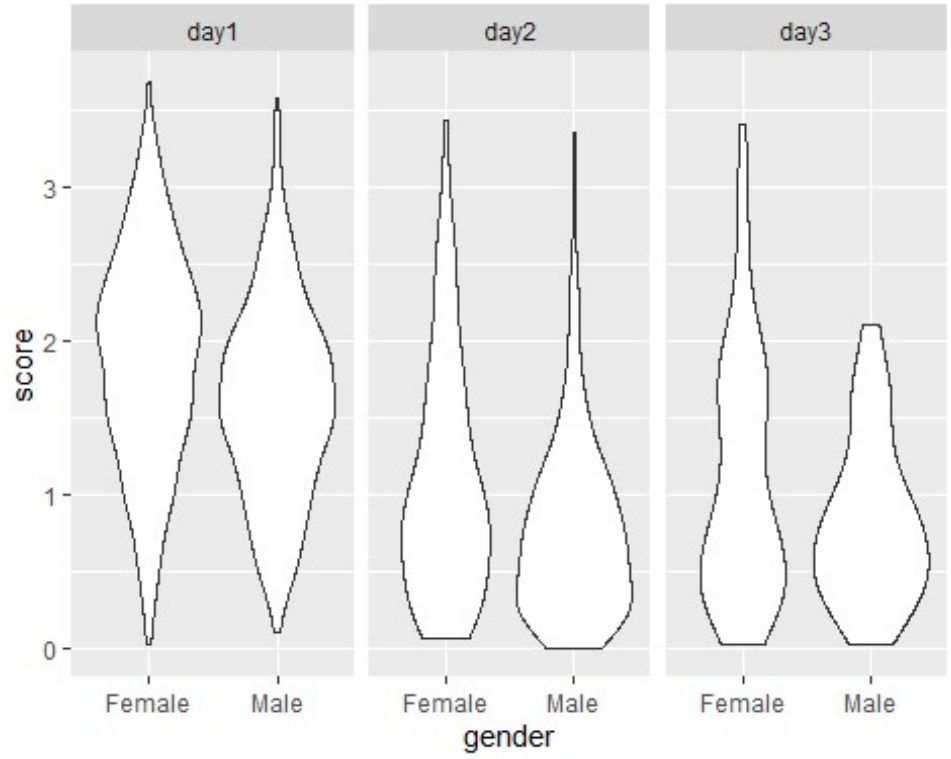



```
Boxplot+scale_x_discrete(limits=c("Male","Female"))
```

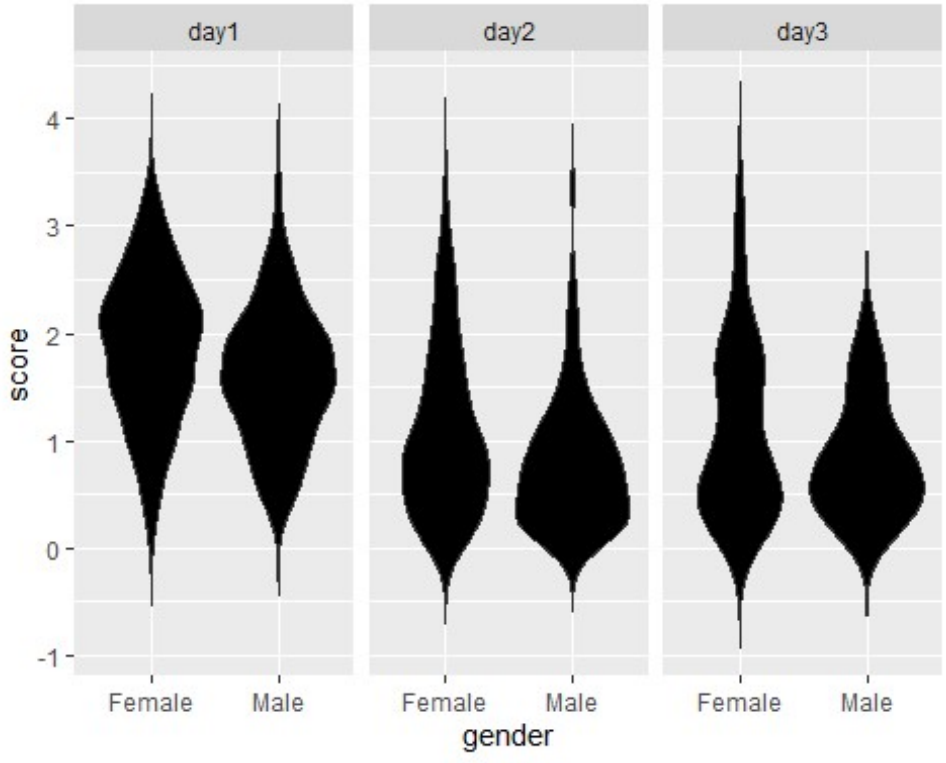


#Violin/bean plot

```
Violinplot<-ggplot(festival.data.stack, aes(gender,score))+geom_violin()+face
t_grid(~day)
Violinplot
```

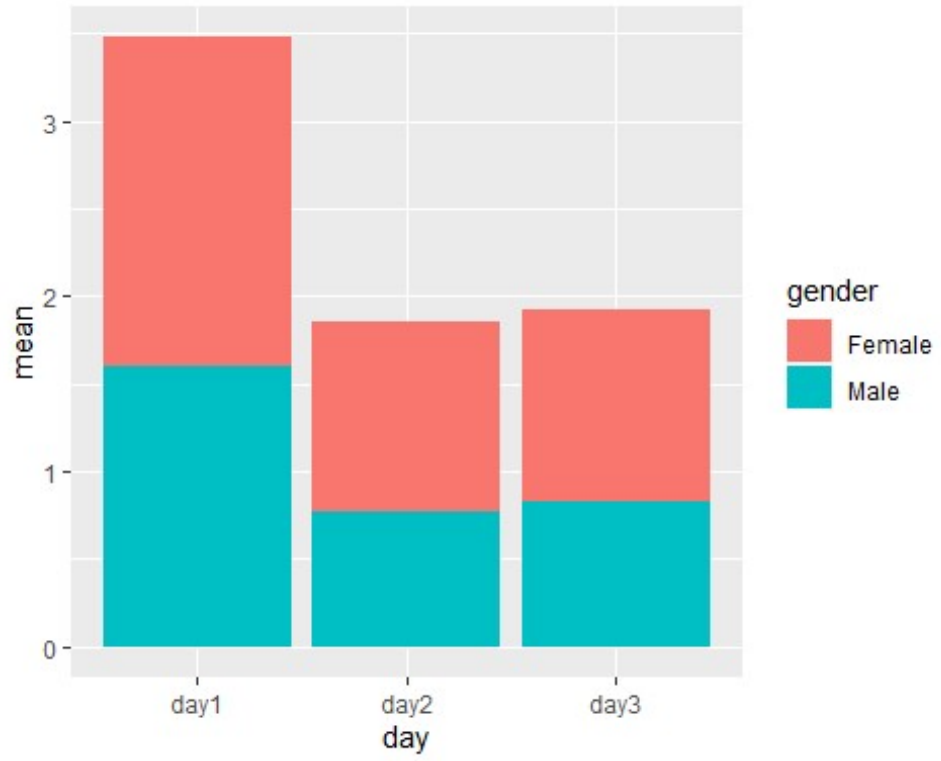



```
Violinplot<-ggplot(festival.data.stack, aes(gender,score))+geom_violin(trim =
FALSE, fill="black")+facet_grid(~day)
Violinplot
```

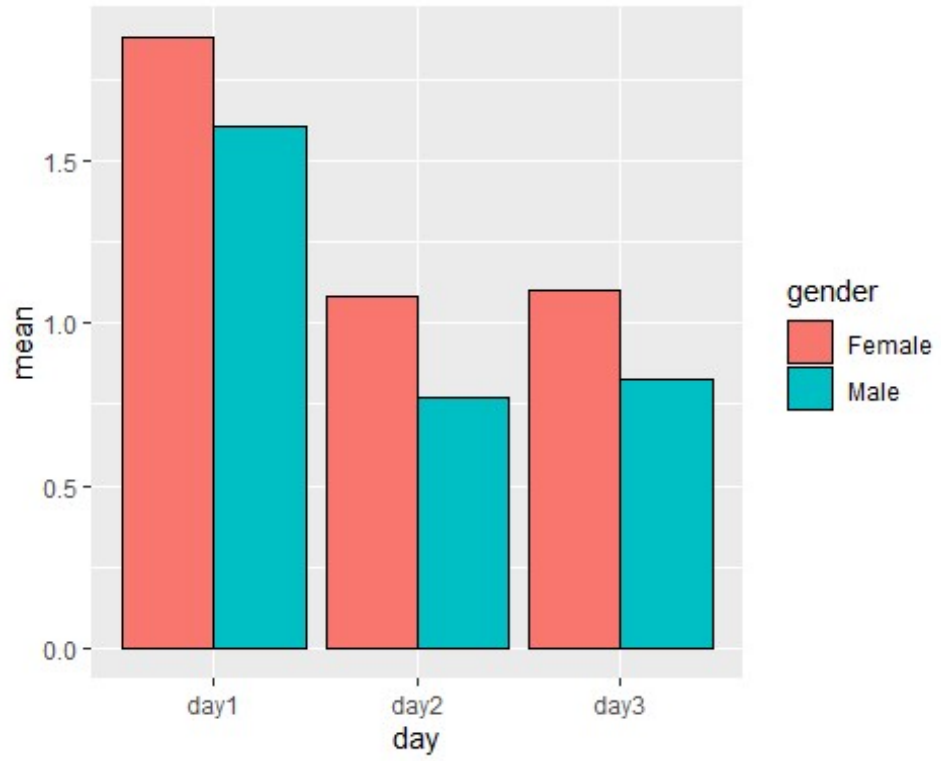


#Bar charts

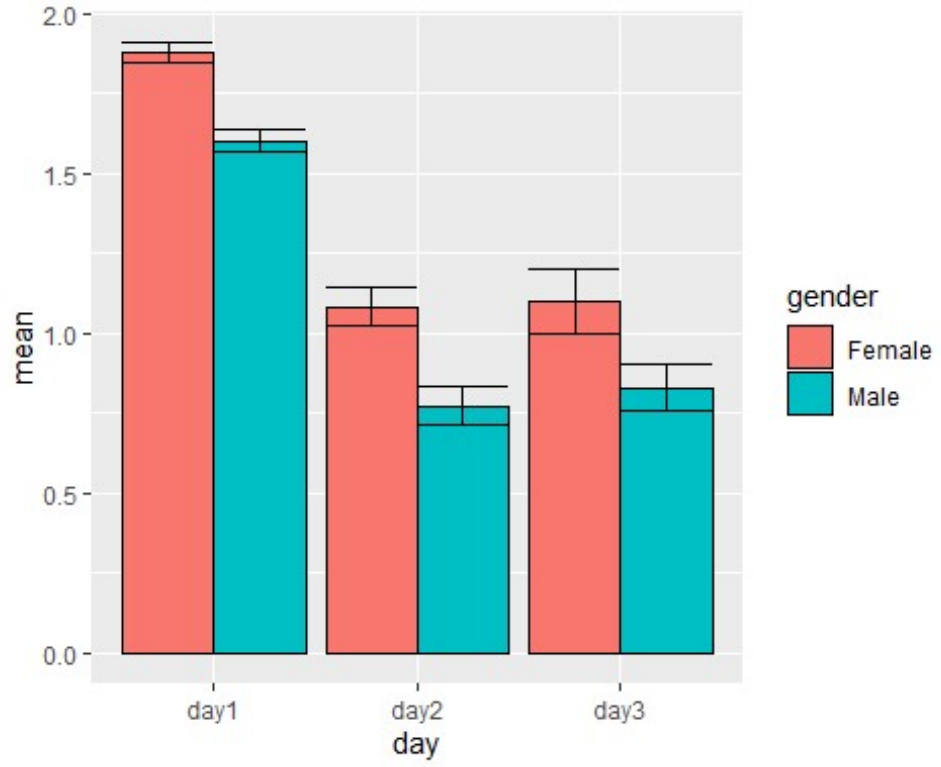
```
library(plyr)

score.sem<-ddply(festival.data.stack,c("gender","day"),summarise,mean=mean(sc
ore), sem=sd(score)/sqrt(length(score)))
score.sem

##   gender  day      mean        sem
## 1 Female day1 1.8787273 0.03164061
## 2 Female day2 1.0828750 0.06077612
## 3 Female day3 1.0997015 0.09895861
## 4   Male day1 1.6020635 0.03619580
## 5   Male day2 0.7732692 0.05847218
## 6   Male day3 0.8291071 0.07209944

BarFestival<-ggplot(score.sem, aes(day,mean, fill=gender))+geom_bar(stat="ide
ntity")
BarFestival
```



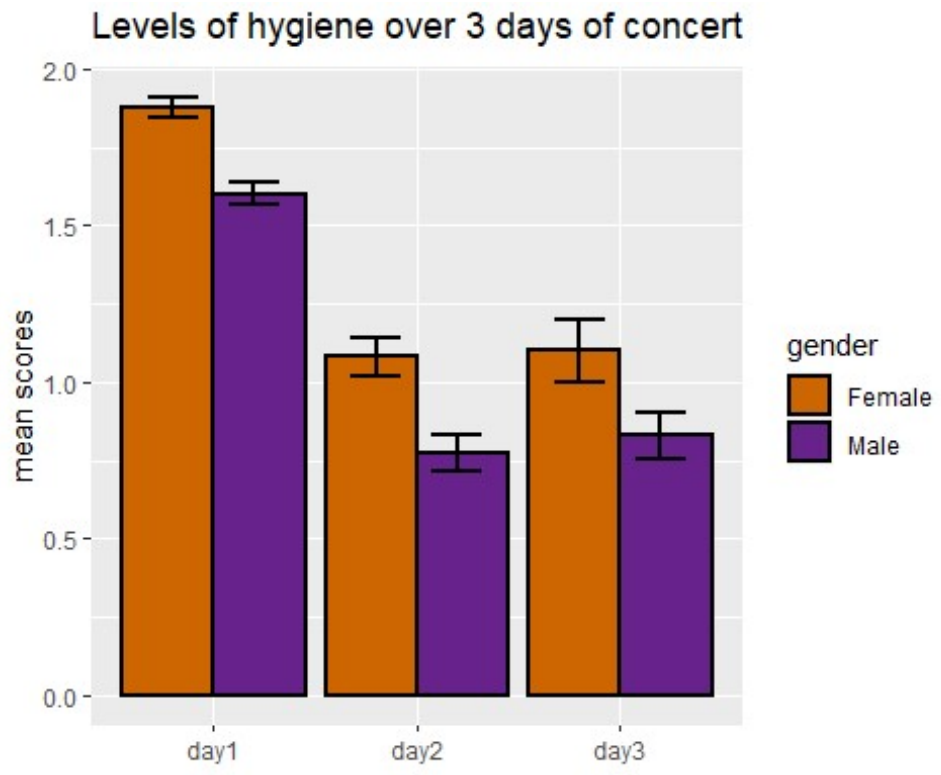

```
BarFestival<-ggplot(score.sem, aes(day,mean, fill=gender))+geom_bar(stat="ide
ntity",position="dodge",colour="black")
BarFestival
```



```
BarFestival<-ggplot(score.sem,aes(day,mean, fill=gender))+geom_bar(position="
dodge", colour="black",stat="identity")+geom_errorbar(aes(ymin=mean-sem, ymax
=mean+sem), position="dodge")
BarFestival
```

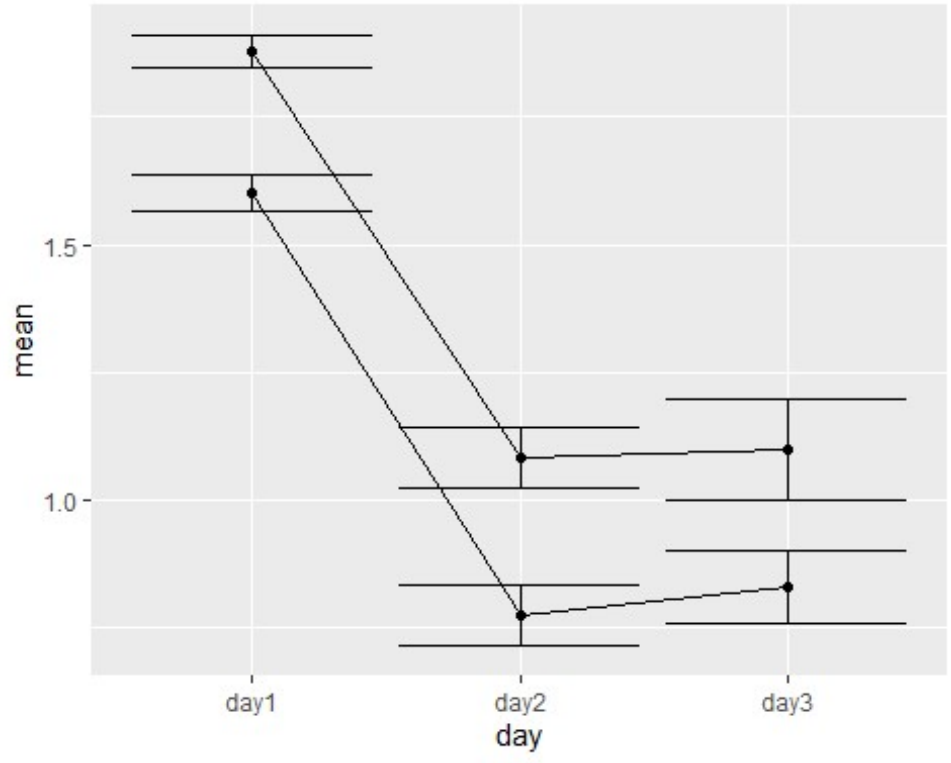



```
BarFestival<-ggplot(score.sem, aes(day,mean, fill=gender))+geom_bar(position=
"dodge", colour="black",stat="identity",size=1)+geom_errorbar(aes(ymin=mean-s
em, ymax=mean+sem), width=.5,position=position_dodge(width=0.8),size=1)
Barfestival<-BarFestival+ ylab("mean scores") + ggtitle("Levels of hygiene ov
er 3 days of concert")+theme(axis.title.x=element_blank())
Barfestival+scale_fill_manual(values=c("darkorange3", "darkorchid4"))+theme(p
lot.title=element_text(vjust=+2))
```

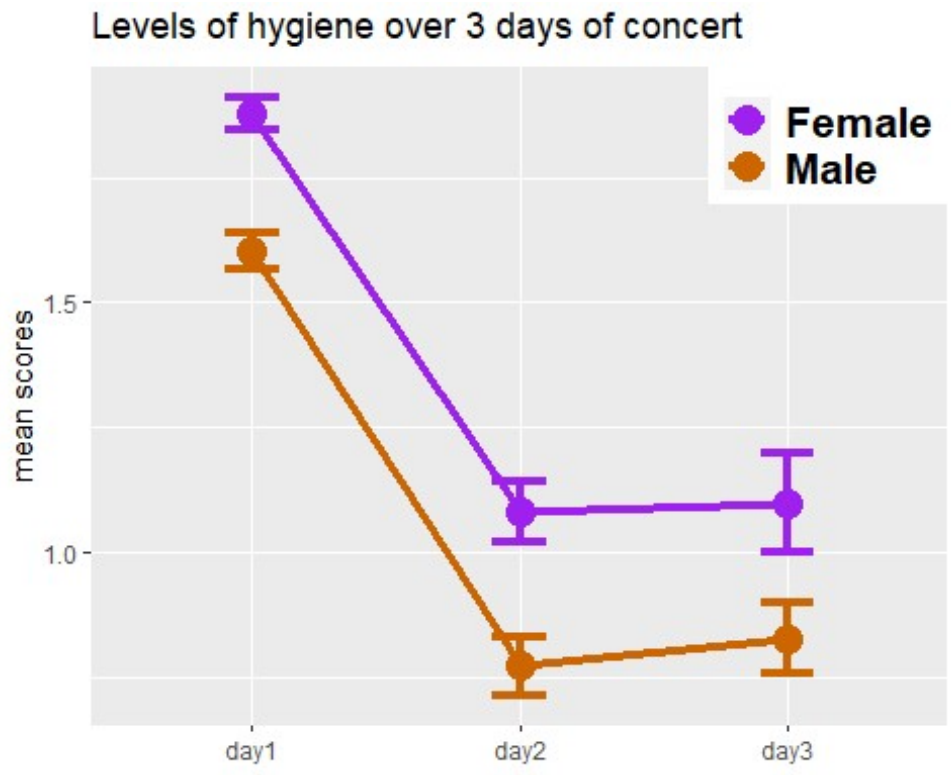


#Line graphs

```
Linegraph<-ggplot(score.sem, aes(day,mean, group=gender))+geom_line()+geom_po
int()+geom_errorbar(aes(ymin=mean-sem,ymax=mean+sem))
Linegraph
```




```
Linegraph<-ggplot(score.sem, aes(day,mean, colour=gender, group=gender))+geom
_line(size=1.5)+geom_point(size=5)+geom_errorbar(aes(ymin=mean-sem, ymax=mean
+sem), width=.2, size=1.5)
Linegraph<-Linegraph+ylab("mean scores")+ggtitle("Levels of hygiene over 3 da
ys of concert")+theme(axis.title.x=element_blank())
Linegraph+scale_colour_manual(values=c("purple","darkorange3"))+theme(legend.
justification=c(1,1),legend.position=c(1, 1))+theme(legend.text=element_text(
size=16, face="bold"))+theme(legend.title= element_blank())+theme(plot.title=
element_text(vjust=+2))
```



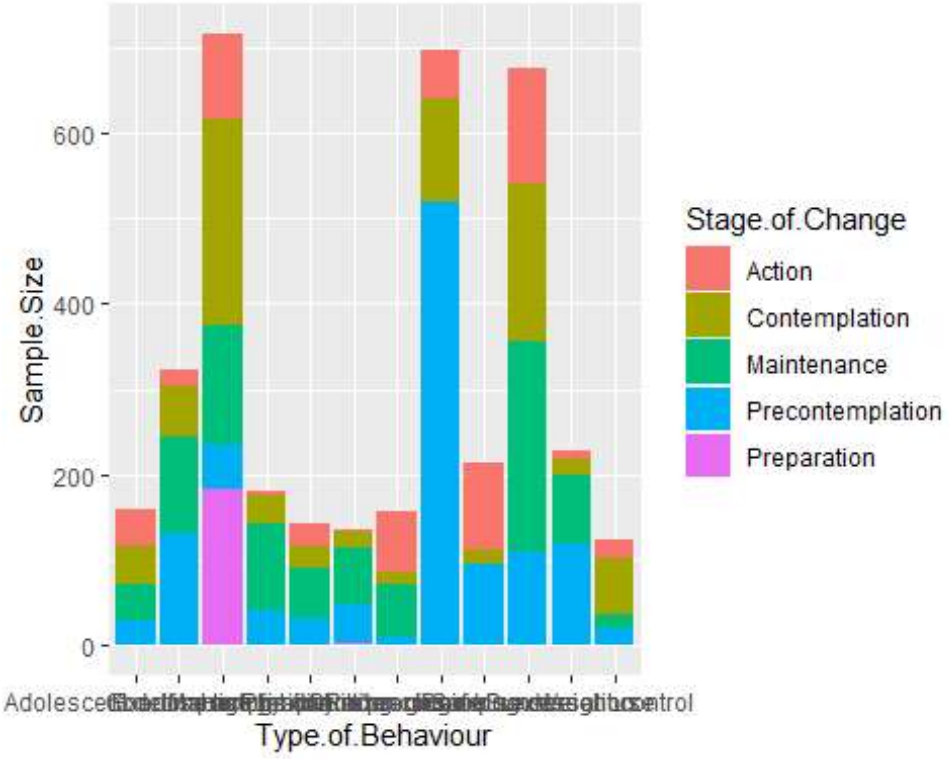

```
theme(axis.title.x=element_blank())

## List of 1
##  $ axis.title.x: list()
##   ..- attr(*, "class")= chr [1:2] "element_blank" "element"
##  - attr(*, "class")= chr [1:2] "theme" "gg"
##  - attr(*, "complete")= logi FALSE
##  - attr(*, "validate")= logi TRUE

scale_colour_manual(values=c("purple","darkorange3"))

## <ggproto object: Class ScaleDiscrete, Scale, gg>
##     aesthetics: colour
##     axis_order: function
##     break_info: function
##     break_positions: function
##     breaks: waiver
##     call: call
##     clone: function
##     dimension: function
##     drop: TRUE
##     expand: waiver
##     get_breaks: function
##     get_breaks_minor: function
##     get_labels: function
##     get_limits: function
##     guide: legend
```

```
##     is_discrete: function
##     is_empty: function
##     labels: waiver
##     limits: NULL
##     make_sec_title: function
##     make_title: function
##     map: function
##     map_df: function
##     n.breaks.cache: NULL
##     na.translate: TRUE
##     na.value: grey50
##     name: waiver
##     palette: function
##     palette.cache: NULL
##     position: left
##     range: <ggproto object: Class RangeDiscrete, Range, gg>
##         range: NULL
##         reset: function
##         train: function
##         super:  <ggproto object: Class RangeDiscrete, Range, gg>
##     rescale: function
##     reset: function
##     scale_name: manual
##     train: function
##     train_df: function
##     transform: function
##     transform_df: function
##     super:  <ggproto object: Class ScaleDiscrete, Scale, gg>
```

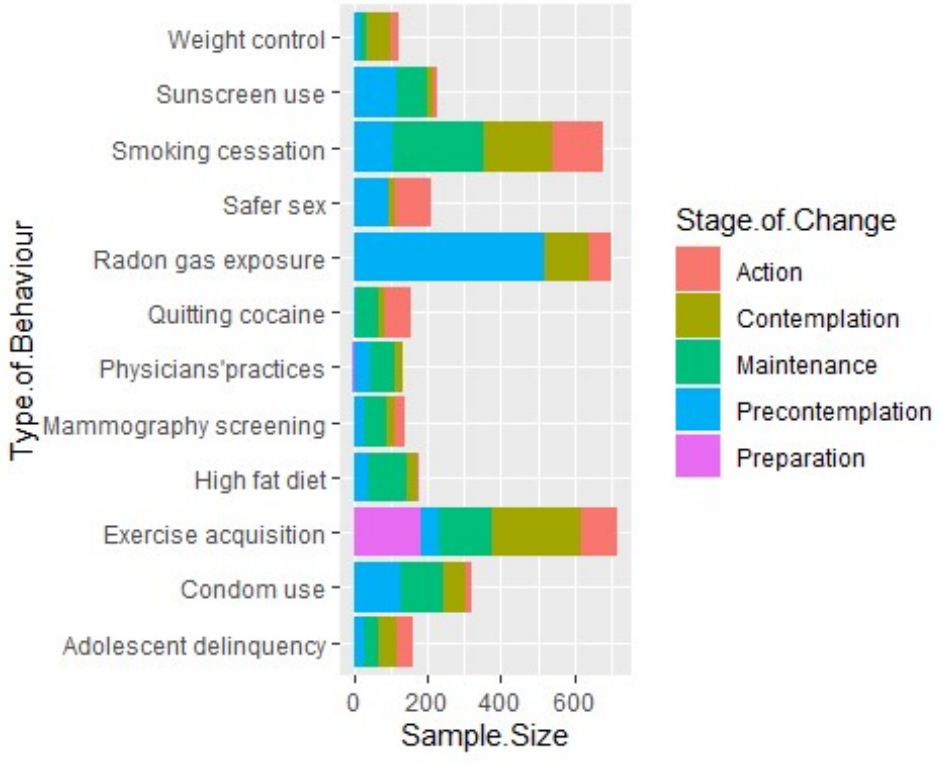
```
legend.justification=c(1,1)
legend.position=c(1, 1)
theme(legend.text=element_text(size=16, face="bold"))
```

```
## List of 1
##  $ legend.text:List of 11
##   ..$ family       : NULL
##   ..$ face         : chr "bold"
##   ..$ colour       : NULL
##   ..$ size         : num 16
##   ..$ hjust        : NULL
##   ..$ vjust        : NULL
##   ..$ angle        : NULL
##   ..$ lineheight   : NULL
##   ..$ margin       : NULL
##   ..$ debug        : NULL
##   ..$ inherit.blank: logi FALSE
##   ..- attr(*, "class")= chr [1:2] "element_text" "element"
##  - attr(*, "class")= chr [1:2] "theme" "gg"
##  - attr(*, "complete")= logi FALSE
##  - attr(*, "validate")= logi TRUE
```

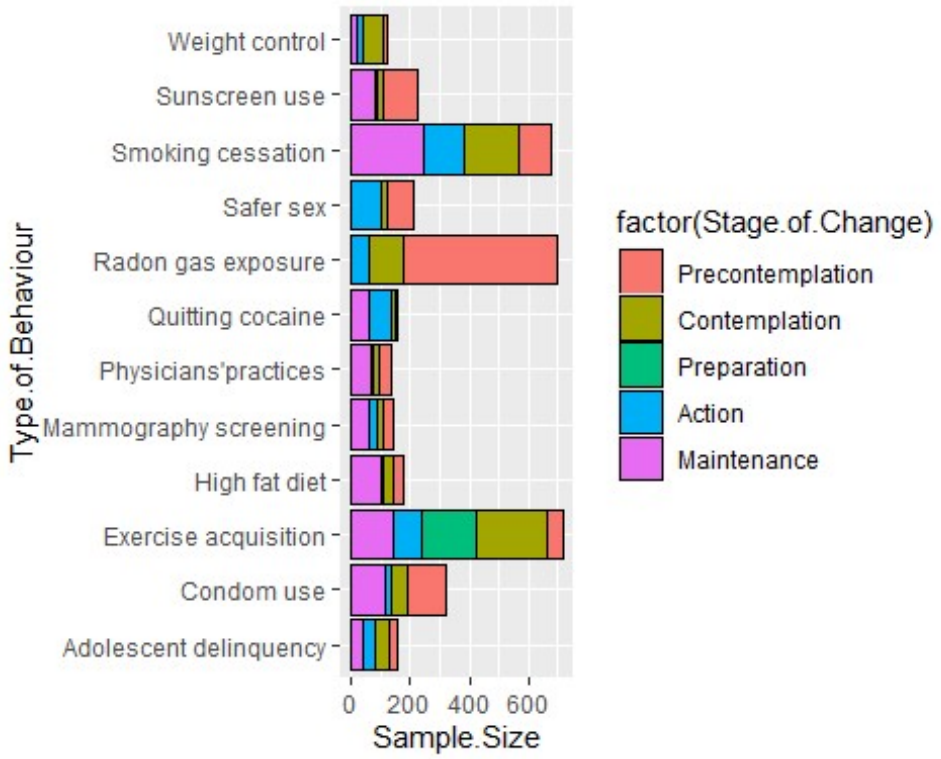
```
theme(legend.title= element_blank())

## List of 1
##  $ legend.title: list()
##   ..- attr(*, "class")= chr [1:2] "element_blank" "element"
##  - attr(*, "class")= chr [1:2] "theme" "gg"
##  - attr(*, "complete")= logi FALSE
##  - attr(*, "validate")= logi TRUE

Changing<-read.csv("Changing.csv")
head(Changing)

##   Type.of.Behaviour Sample.Size  Stage.of.Change
## 1 Smoking cessation         108 Precontemplation
## 2 Smoking cessation         187    Contemplation
## 3 Smoking cessation           0      Preparation
## 4 Smoking cessation         134           Action
## 5 Smoking cessation         247      Maintenance
## 6  Quitting cocaine           8 Precontemplation

StackedBar<-ggplot(Changing, aes(Type.of.Behaviour, Sample.Size, fill = Stage
.of.Change))+geom_bar(stat="identity")
StackedBar
```



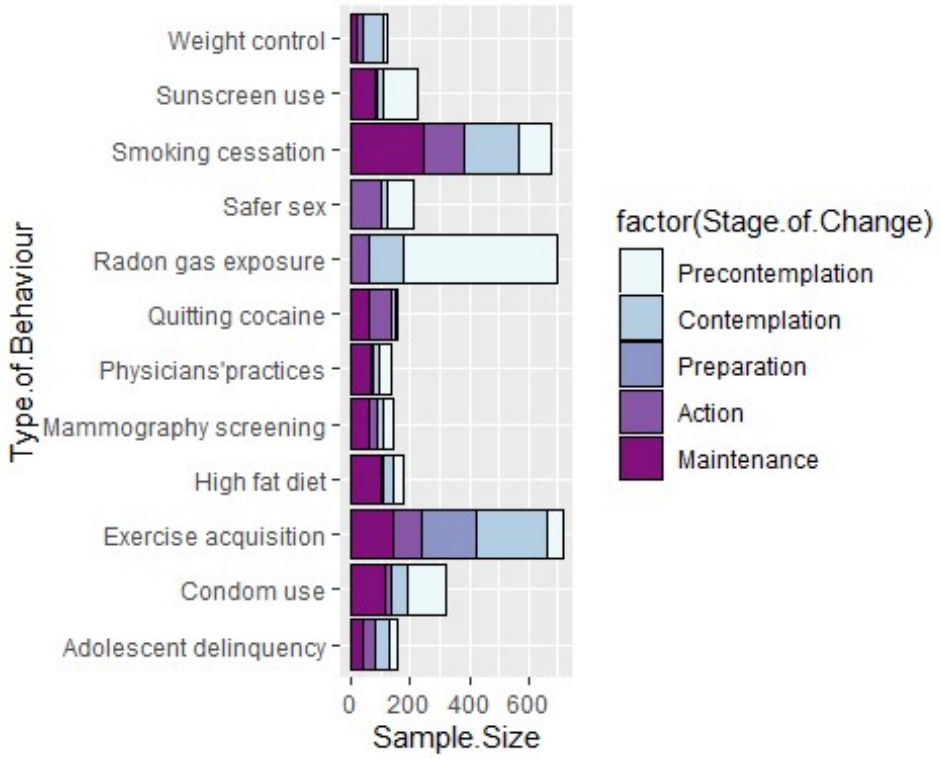

```
StackedBar<-ggplot(Changing, aes(Type.of.Behaviour, Sample.Size, fill =Stage.
of.Change))+geom_bar(stat="identity")+coord_flip()
StackedBar
```



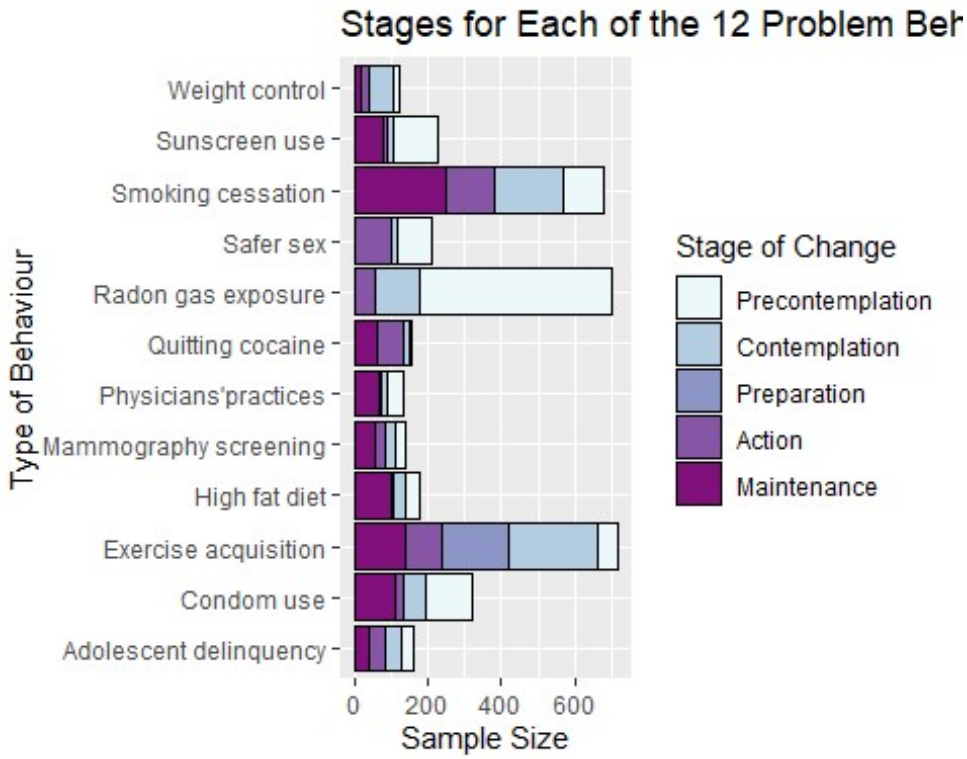

```
Changing$Stage.of.Change <- factor(Changing$Stage.of.Change, levels = c("Prec
ontemplation", "Contemplation", "Preparation", "Action", "Maintenance"))

StackedBar<-ggplot(Changing, aes(Type.of.Behaviour, Sample.Size, fill =factor
(Stage.of.Change)))+geom_bar(stat="identity",colour="black")+coord_flip()
StackedBar
```




```
StackedBar+scale_fill_brewer(palette = 3)
```



```
StackedBar+scale_fill_brewer(palette=3)+labs(title="Stages for Each of the 12
Problem Behaviours", y="Sample Size", x="Type of Behaviour", fill="Stage of C
hange")
```




```
contingency.table<-xtabs(Sample.Size~Type.of.Behaviour+Stage.of.Change,Changi
ng)
contingency.table
```

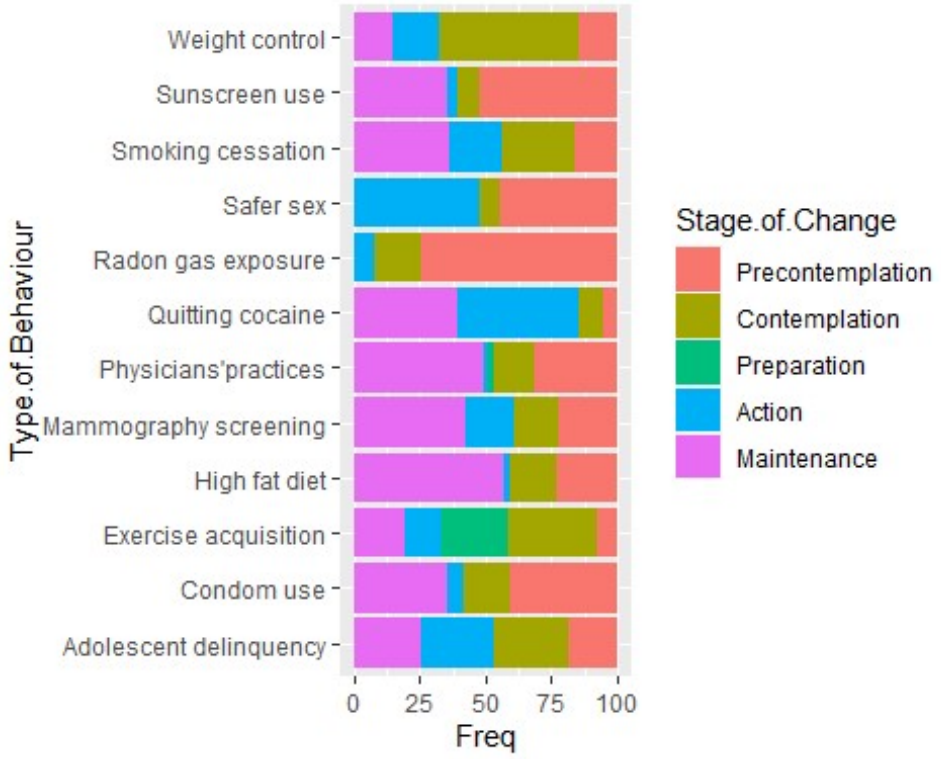
```
##                          Stage.of.Change
## Type.of.Behaviour         Precontemplation Contemplation Preparation Action
##   Adolescent delinquency                29            46           0     43
##   Condom use                           131            58           0     20
##   Exercise acquisition                  53           242         182    101
##   High fat diet                         41            32           0      5
##   Mammography screening                 31            24           0     26
##   Physicians'practices                  43            20           3      2
##   Quitting cocaine                       8            15           0     71
##   Radon gas exposure                   520           121           0     57
##   Safer sex                             94            17           0    102
##   Smoking cessation                    108           187           0    134
##   Sunscreen use                        119            18           0     10
##   Weight control                        18            65           0     22
##                          Stage.of.Change
## Type.of.Behaviour         Maintenance
##   Adolescent delinquency          41
##   Condom use                     114
##   Exercise acquisition           139
```

```
##   High fat diet                   102
##   Mammography screening            60
##   Physicians'practices             67
##   Quitting cocaine                 62
##   Radon gas exposure                0
##   Safer sex                         0
##   Smoking cessation               247
##   Sunscreen use                    80
##   Weight control                   18
```

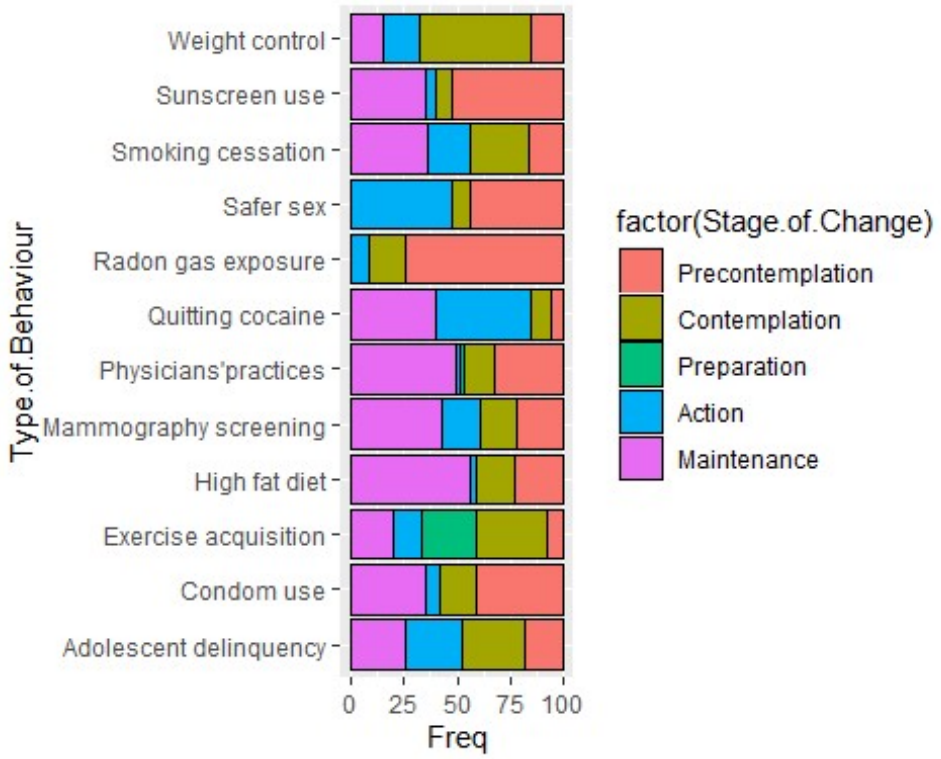
```
contingency.table100<-prop.table(contingency.table,1)
contingency.table100<-contingency.table100*100

Changing.percent<-as.data.frame(contingency.table100)
head(Changing.percent)
```

```
##        Type.of.Behaviour  Stage.of.Change      Freq
## 1 Adolescent delinquency Precontemplation 18.238994
## 2             Condom use Precontemplation 40.557276
## 3   Exercise acquisition Precontemplation  7.391911
## 4          High fat diet Precontemplation 22.777778
## 5  Mammography screening Precontemplation 21.985816
## 6   Physicians'practices Precontemplation 31.851852
```

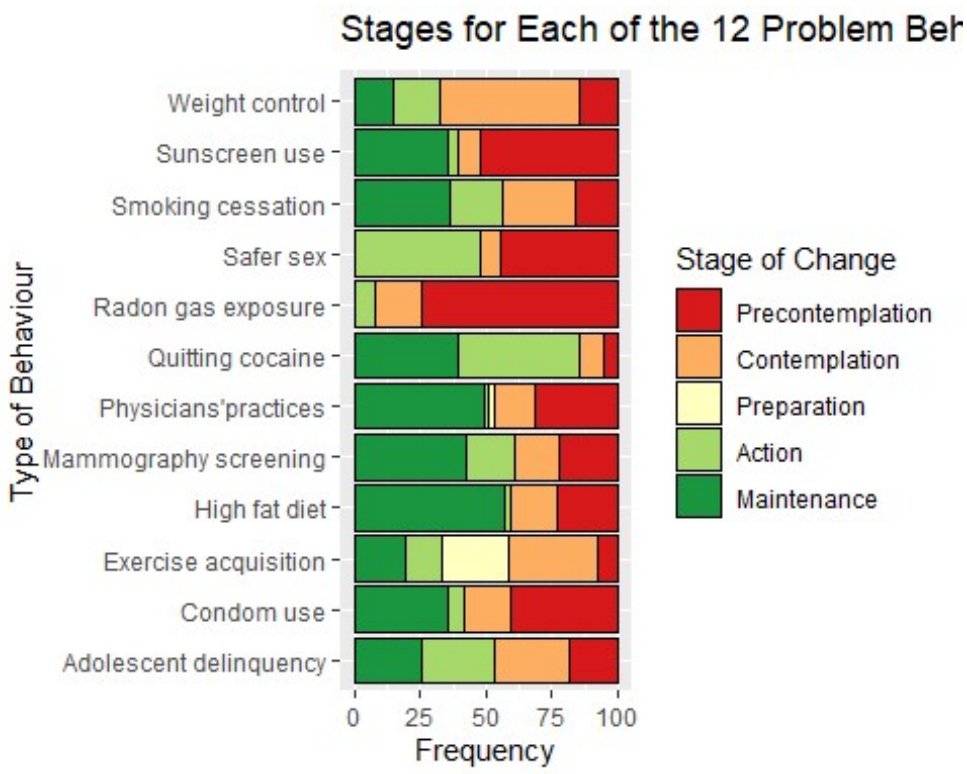
```
StackedBar.percent<-ggplot(Changing.percent,aes(Type.of.Behaviour, Freq, fill
=Stage.of.Change))+geom_bar(stat="identity")+coord_flip()
StackedBar.percent
```



```
Changing.percent$Stage.of.Change <- factor(Changing.percent$Stage.of.Change,
levels = c("Precontemplation", "Contemplation", "Preparation", "Action", "Mai
ntenance"))

StackedBar<-ggplot(Changing.percent, aes(Type.of.Behaviour, Freq, fill = fact
or(Stage.of.Change)))+geom_bar(stat="identity",colour="black")+coord_flip()
StackedBar
```




```
StackedBar+scale_fill_brewer(palette = "RdYlGn")+labs(title="Stages for Each
of the 12 Problem Behaviours", y ="Frequency", x="Type of Behaviour", fill="S
tage of Change")+theme(plot.title=element_text(vjust=+2))
```


Stages for Each of the 12 Problem Beh
Weight control
Sunscreen use
Smoking cessation
Safer sex
Radon gas exposure
Quitting cocaine
Physicians'practices
Mammography screening
High fat diet
Exercise acquisition
Condom use
Adolescent delinquency
Type of Behaviour
0
25
50
75
100
Frequency
Stage of Change
Precontemplation
Contemplation
Preparation
Action
Maintenance