DATA 698: Data Analysis with R

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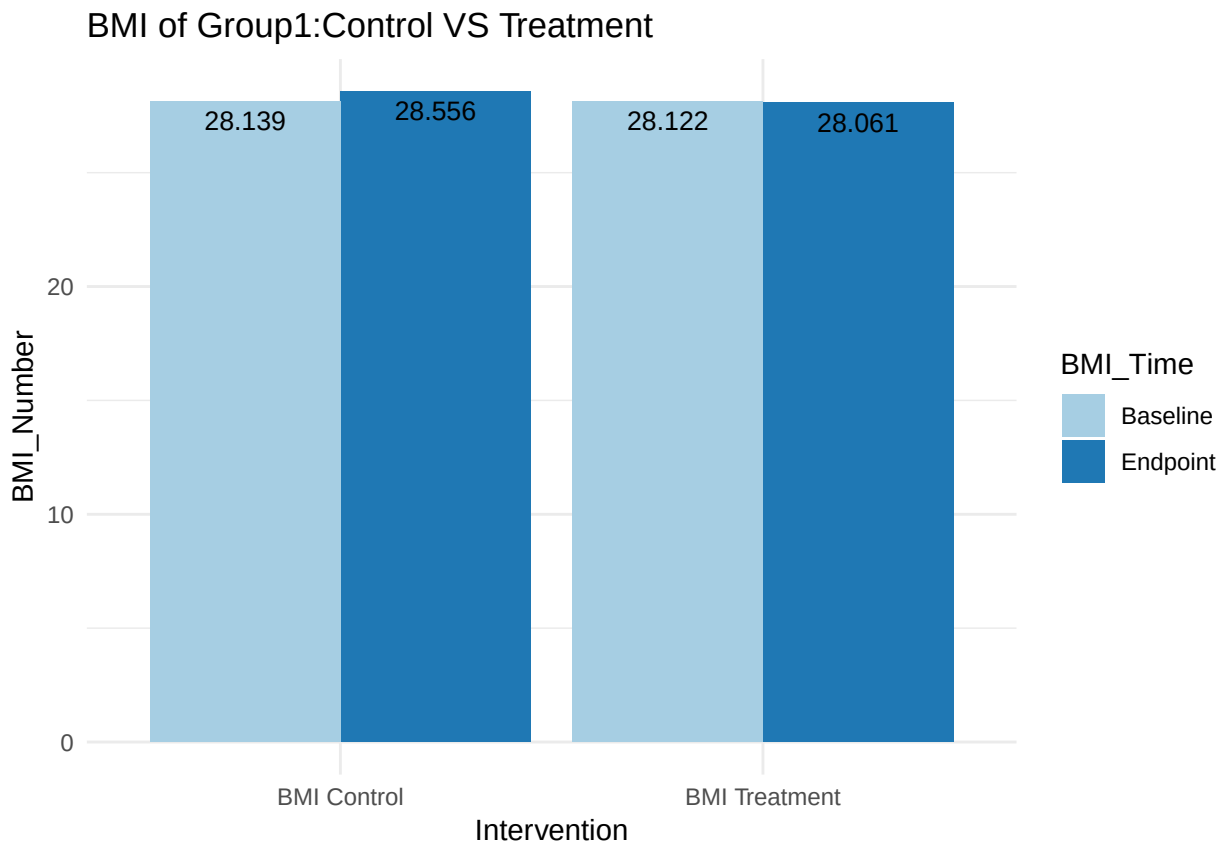
May 18, 2019

```
library(ggplot2)
```

```
# BMI Comparison Between Control and Treatment Participant of Group1
df <- data.frame(Intervention=rep(c("BMI Control", "BMI Treatment"), each=2),
                 BMI_Time=rep(c("Baseline", "Endpoint"),2),
                 BMI_Number=c(28.139, 28.556, 28.122, 28.061))
head(df)
```

```
##    Intervention BMI_Time BMI_Number
## 1   BMI Control Baseline     28.139
## 2   BMI Control Endpoint     28.556
## 3 BMI Treatment Baseline     28.122
## 4 BMI Treatment Endpoint     28.061
```

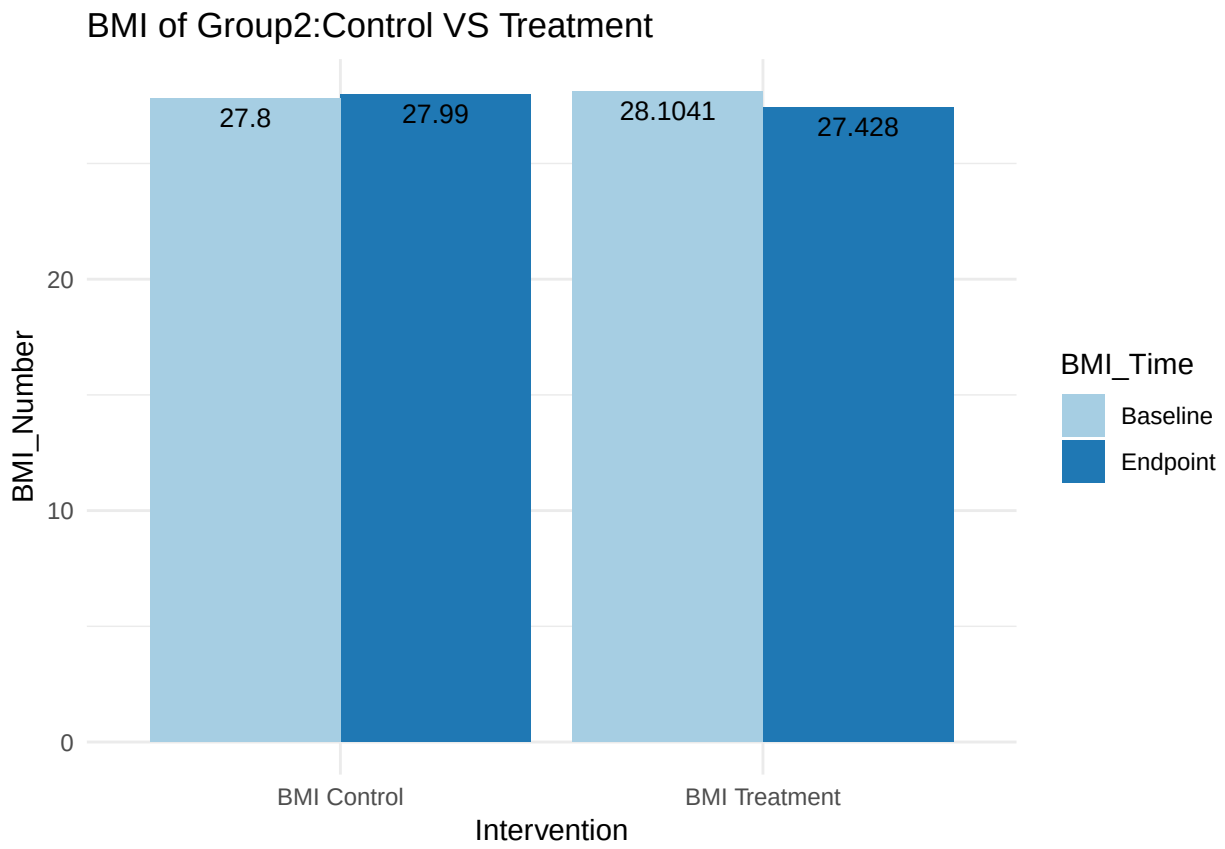
```
ggplot(data=df, aes(x=Intervention, y=BMI_Number, fill=BMI_Time)) +
  geom_bar(stat="identity", position=position_dodge(),width=.9)+
  geom_text(aes(label=BMI_Number), vjust=1.5, color="black",
            position = position_dodge(.9), size=3.5)+
  scale_fill_brewer(palette="Paired")+
  theme_minimal()+
  labs(title="BMI of Group1:Control VS Treatment")
```




```
# BMI Comparison Between Control and Treatment Participant of Group2

df <- data.frame(Intervention=rep(c("BMI Control", "BMI Treatment"), each=2),
                 BMI_Time=rep(c("Baseline", "Endpoint"),2),
                 BMI_Number=c(27.8, 27.99, 28.1041, 27.428))
head(df)
```

```
##    Intervention BMI_Time BMI_Number
## 1   BMI Control Baseline    27.8000
## 2   BMI Control Endpoint    27.9900
## 3 BMI Treatment Baseline    28.1041
## 4 BMI Treatment Endpoint    27.4280
```

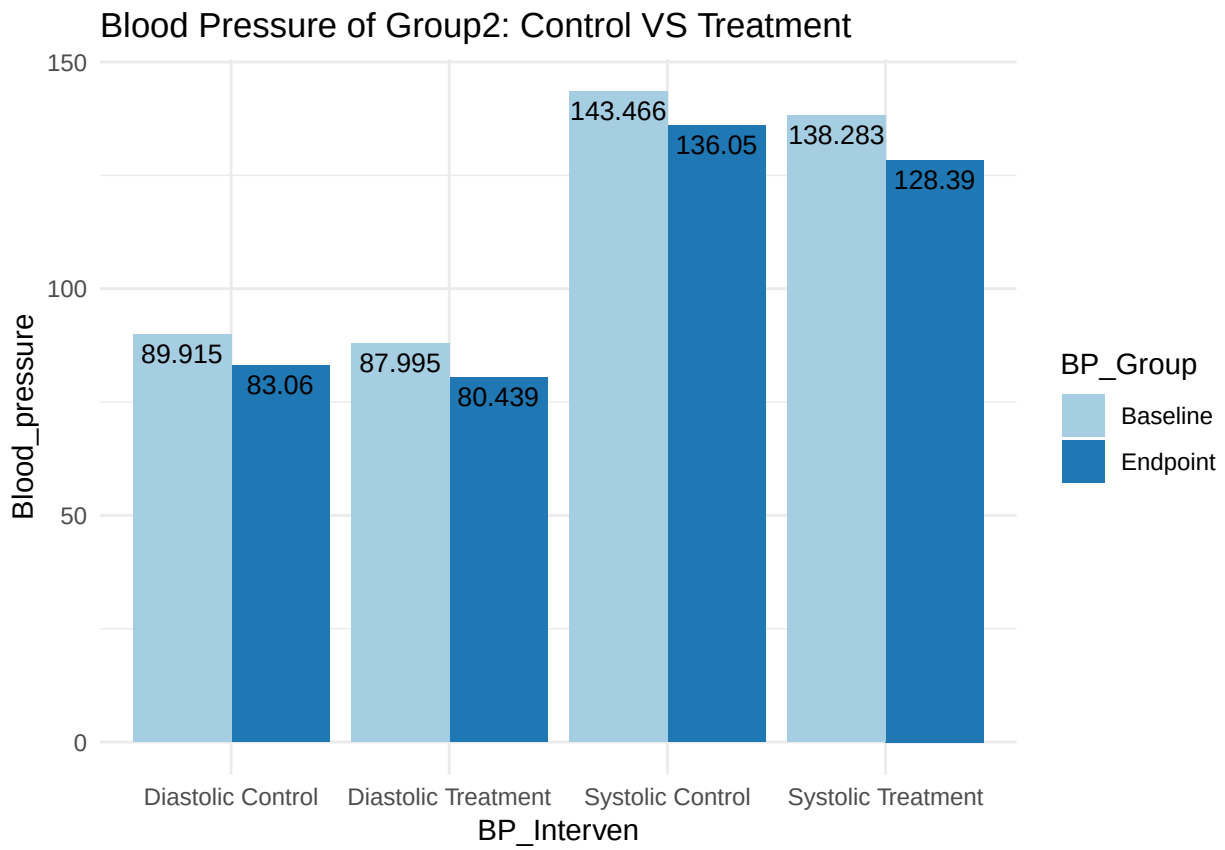
```
ggplot(data=df, aes(x=Intervention, y=BMI_Number, fill=BMI_Time)) +
  geom_bar(stat="identity", position=position_dodge(),width=.9)+
  geom_text(aes(label=BMI_Number), vjust=1.5, color="black",
            position = position_dodge(.9), size=3.5)+
  scale_fill_brewer(palette="Paired")+
  theme_minimal()+
  labs(title="BMI of Group2:Control VS Treatment")
```




```
# Blood Pressure Comparison Between Control and Treatment Participant of Group2

df <- data.frame(BP_Interven=rep(c("Systolic Control", "Diastolic Control","Systolic Treatment","Diasto
                 BP_Group=rep(c("Baseline", "Endpoint"),2),
                 Blood_pressure=c(143.466, 136.05, 89.915,83.06,138.283,128.39,87.995,80.439))
head(df)
```

```
##          BP_Interven BP_Group Blood_pressure
## 1   Systolic Control Baseline        143.466
## 2   Systolic Control Endpoint        136.050
## 3  Diastolic Control Baseline         89.915
## 4  Diastolic Control Endpoint         83.060
## 5 Systolic Treatment Baseline        138.283
## 6 Systolic Treatment Endpoint        128.390
```

```
ggplot(data=df, aes(x=BP_Interven, y=Blood_pressure, fill=BP_Group)) +
  geom_bar(stat="identity", position=position_dodge(),width=.9)+
  geom_text(aes(label=Blood_pressure), vjust=1.5, color="black",
            position = position_dodge(.9), size=3.5)+
  scale_fill_brewer(palette="Paired")+
  theme_minimal()+
  labs(title="Blood Pressure of Group2: Control VS Treatment")
```



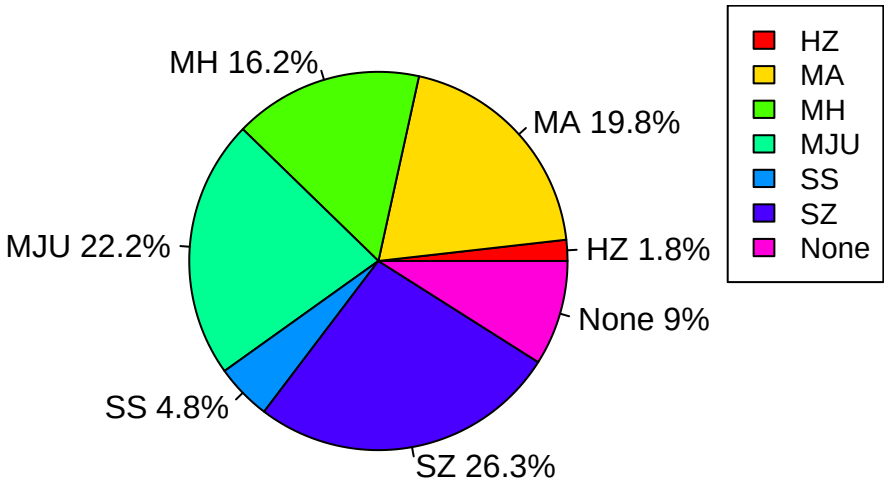

```
library(dplyr)
```

```
##
## Attaching package: 'dplyr'

## The following objects are masked from 'package:stats':
##
##     filter, lag

## The following objects are masked from 'package:base':
##
##     intersect, setdiff, setequal, union
```

```
library(ggplot2)
library(ggmap) # for theme_nothing
```

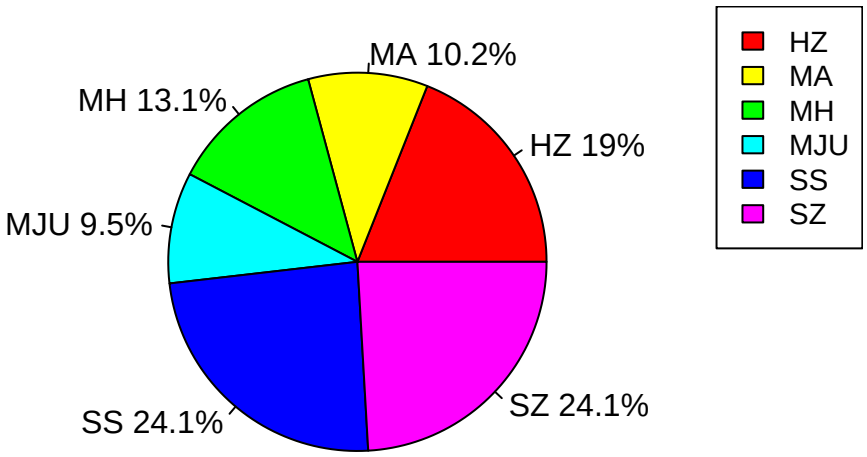
```
## Warning: package 'ggmap' was built under R version 3.5.3

## Google's Terms of Service: https://cloud.google.com/maps-platform/terms/.

## Please cite ggmap if you use it! See citation("ggmap") for details.
```

```r
# Piechart of Participant distribution Among CHW in Round1

x <- c(3, 33, 27,37,8,44,15)

CHW <-  c("HZ","MA","MH","MJU","SS","SZ","None")

pct<- round(100*x/sum(x), 1)

label<-paste(CHW,pct)
label<-paste(label,"%",sep="")

# Plot the chart.
pie(x, labels = label, main = "Round1: Participant Distribution Among CHW",col = rainbow(length(x)))
legend("topright", c("HZ","MA","MH","MJU","SS","SZ","None"), cex = 0.9,
   fill = rainbow(length(x)))
```




```r
# Piechart of Participant distribution Among CHW in Round2

x <- c(26, 14, 18,13,33,33)

CHW <-  c("HZ","MA","MH","MJU","SS","SZ")

pct<- round(100*x/sum(x), 1)

label<-paste(CHW,pct)
```

```
label<-paste(label,"%",sep="")

# Plot the chart.
pie(x, labels = label, main = "Round2: Participant Distribution Among CHW",col = rainbow(length(x)))
legend("topright", c("HZ","MA","MH","MJU","SS","SZ"), cex = 0.9,
   fill = rainbow(length(x)))
```

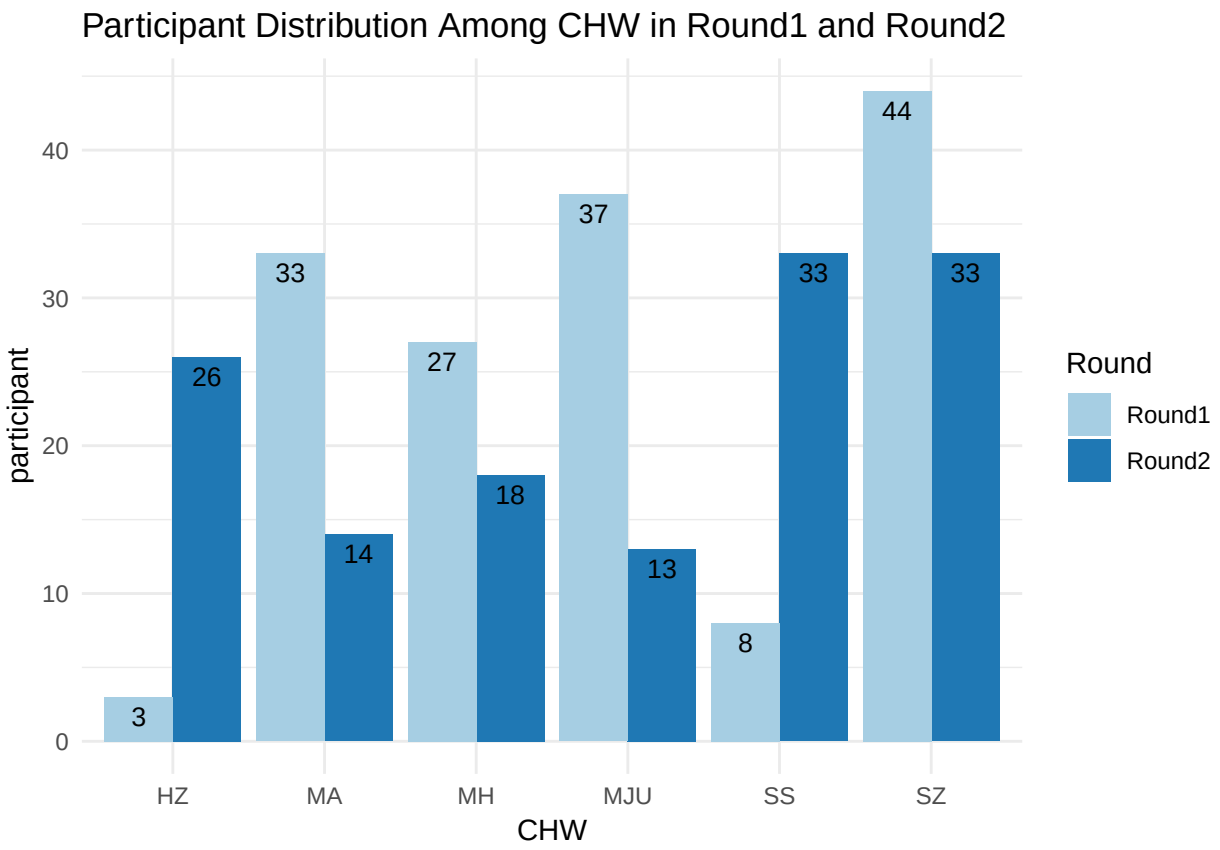



```
#Participant Distribution Among CHW in Round1 and Round2

df <- data.frame(CHW=rep(c("HZ", "MA","MH","MJU", "SS", "SZ"), each=2),
                 Round=rep(c("Round1", "Round2"),2),
                 participant=c(3, 26, 33,14,27,18,37,13, 8 ,33, 44,33))
head(df)
```

```
##   CHW  Round participant
## 1  HZ Round1           3
## 2  HZ Round2          26
## 3  MA Round1          33
## 4  MA Round2          14
## 5  MH Round1          27
## 6  MH Round2          18
```

```
ggplot(data=df, aes(x=CHW, y=participant, fill=Round)) +
  geom_bar(stat="identity", position=position_dodge(),width=.9)+
```

```
  geom_text(aes(label=participant), vjust=1.5, color="black",
            position = position_dodge(.9), size=3.5)+
  scale_fill_brewer(palette="Paired")+
  theme_minimal()+
  labs(title="Participant Distribution Among CHW in Round1 and Round2")
```

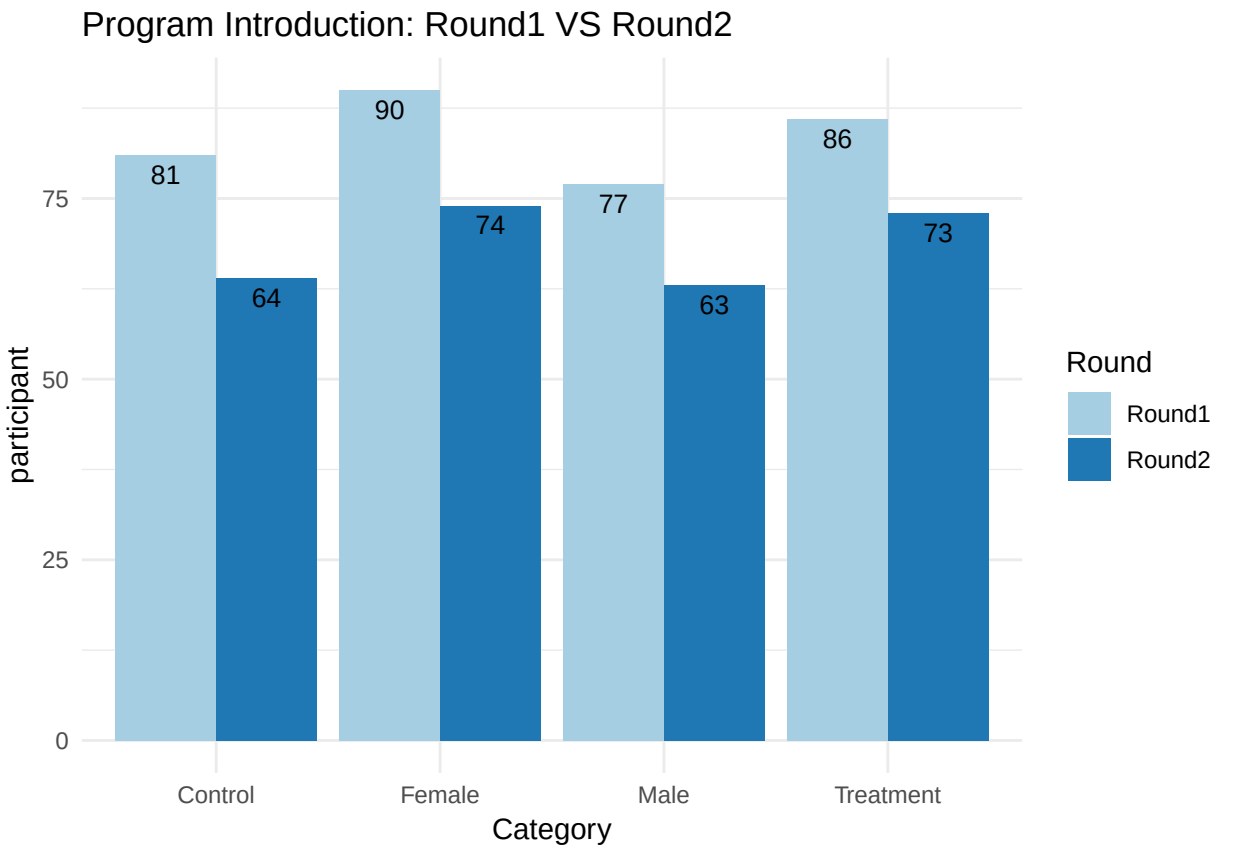



```
#Program Introduction: Round1 VS Round2

df <- data.frame(Category=rep(c("Control", "Treatment","Male","Female"), each=2),
                 Round=rep(c("Round1", "Round2"),2),
                 participant=c(81, 64, 86,73,77,63,90,74))
head(df)
```

```
##    Category  Round participant
## 1   Control Round1          81
## 2   Control Round2          64
## 3 Treatment Round1          86
## 4 Treatment Round2          73
## 5      Male Round1          77
## 6      Male Round2          63
```

```
ggplot(data=df, aes(x=Category, y=participant, fill=Round)) +
  geom_bar(stat="identity", position=position_dodge(),width=.9)+
  geom_text(aes(label=participant), vjust=1.5, color="black",
```

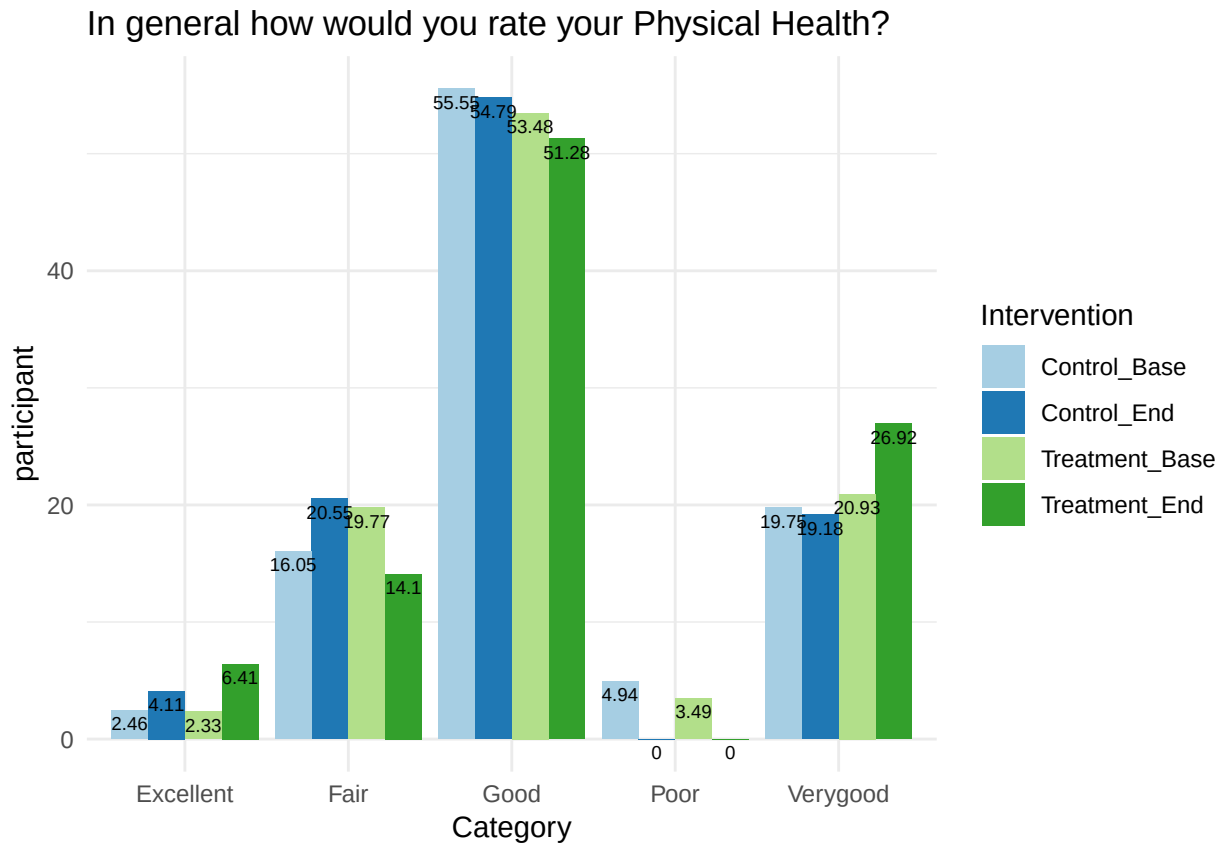
```
            position = position_dodge(.9), size=3.5)+
  scale_fill_brewer(palette="Paired")+
  theme_minimal()+
  labs(title="Program Introduction: Round1 VS Round2")
```




```
#In general how would you rate your Physical Health?

df <- data.frame(Category=rep(c("Excellent", "Verygood","Good","Fair","Poor"), each=4),
                 Intervention=rep(c("Control_Base","Control_End","Treatment_Base","Treatment_End"),5),
                 participant=c(2.46, 4.11, 2.33, 6.41,
                               19.75, 19.18, 20.93, 26.92, 55.55,
                               54.79, 53.48, 51.28,16.05, 20.55,
                               19.77, 14.10, 4.94, 0, 3.49, 0))
head(df)
```

```
##    Category   Intervention participant
## 1 Excellent   Control_Base        2.46
## 2 Excellent    Control_End        4.11
## 3 Excellent Treatment_Base        2.33
## 4 Excellent  Treatment_End        6.41
## 5  Verygood   Control_Base       19.75
## 6  Verygood    Control_End       19.18
```

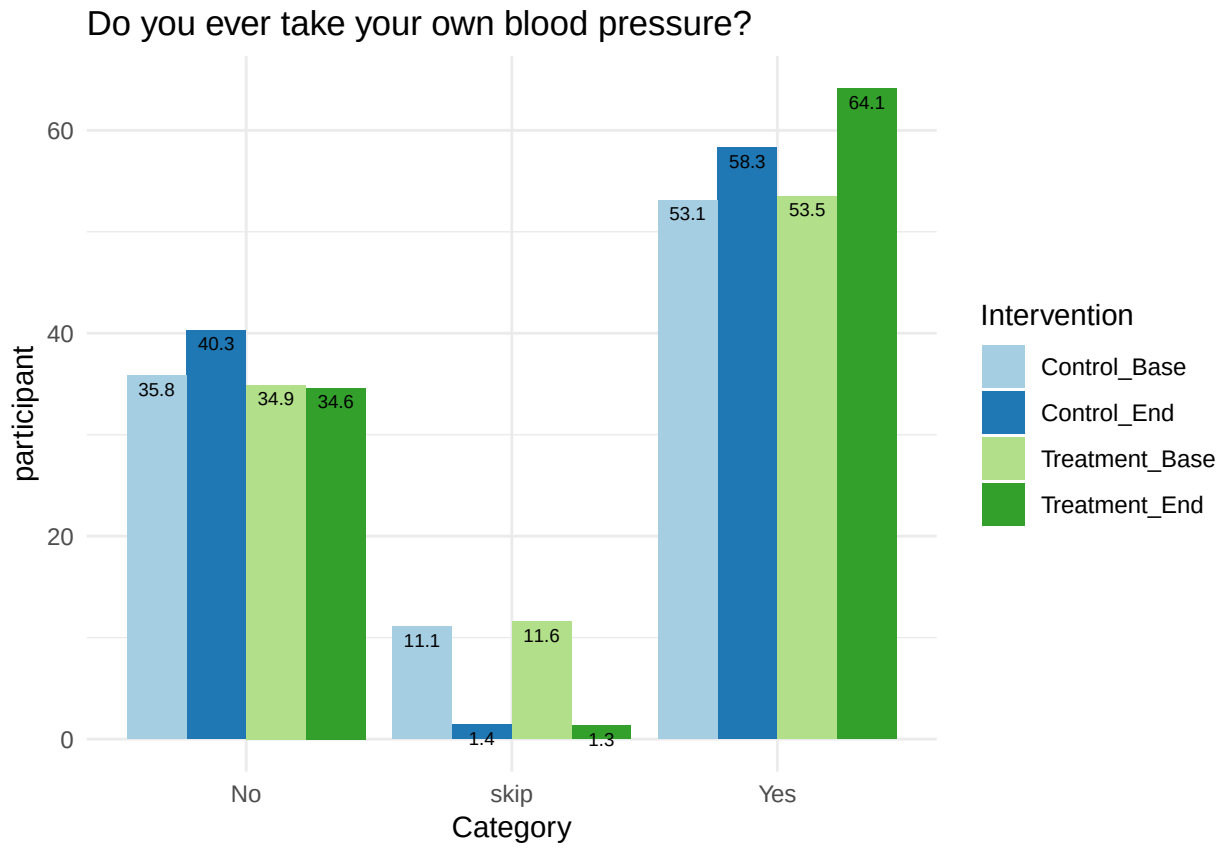
```
ggplot(data=df, aes(x=Category, y=participant, fill=Intervention)) +
  geom_bar(stat="identity", position=position_dodge(),width=.9)+
  geom_text(aes(label=participant), vjust=1.5, color="black",
            position = position_dodge(.9), size=2.6)+
  scale_fill_brewer(palette="Paired")+
  theme_minimal()+
  labs(title="In general how would you rate your Physical Health?")
```




```
#Do you ever take your own blood pressure?

df <- data.frame(Category=rep(c("No", "skip","Yes"), each=4),
                 Intervention=rep(c("Control_Base","Control_End","Treatment_Base","Treatment_End"),3),
                 participant=c(35.8, 40.3    ,34.9, 34.6, 11.1, 1.4, 11.6, 1.3, 53.1, 58.3, 53.5, 64.1))
head(df)
```

```
##   Category   Intervention participant
## 1       No   Control_Base        35.8
## 2       No    Control_End        40.3
## 3       No Treatment_Base        34.9
## 4       No  Treatment_End        34.6
## 5     skip   Control_Base        11.1
## 6     skip    Control_End         1.4
```

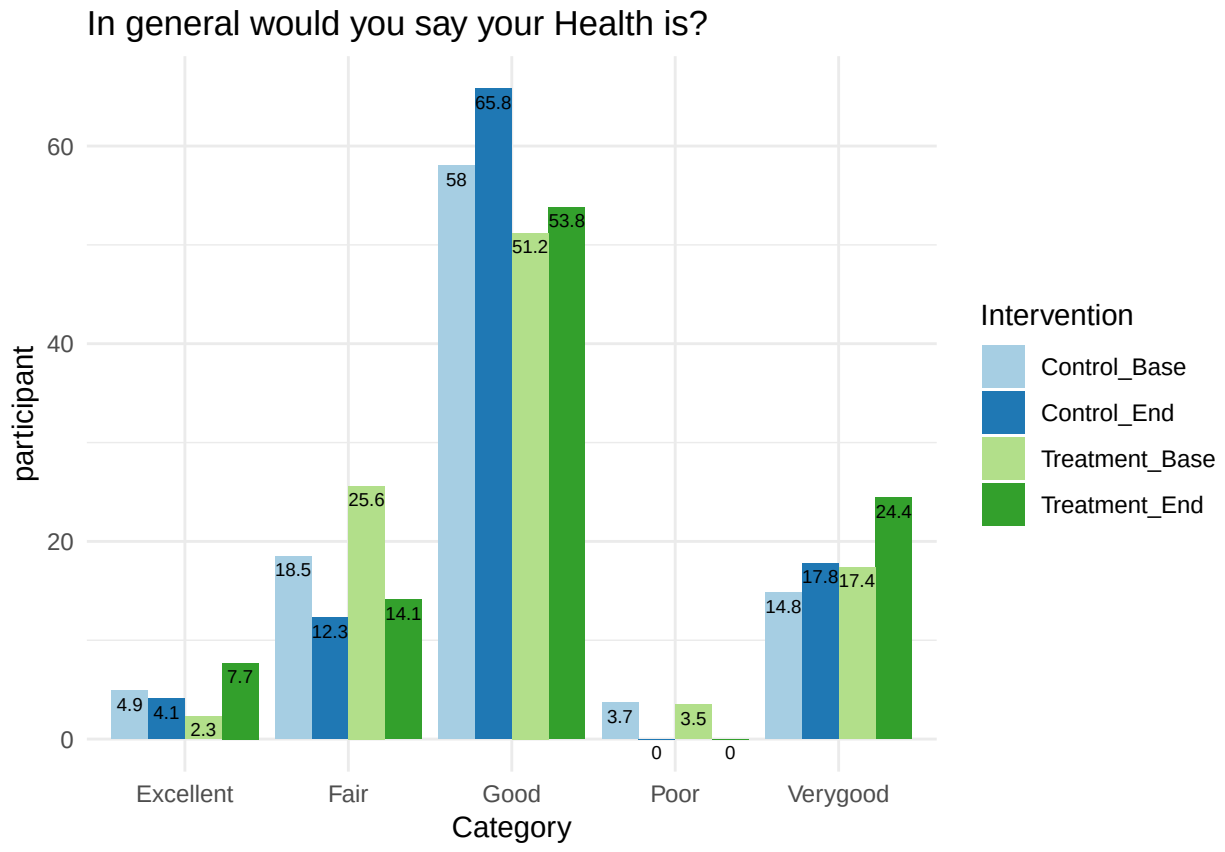
```
ggplot(data=df, aes(x=Category, y=participant, fill=Intervention)) +
  geom_bar(stat="identity", position=position_dodge(),width=.9)+
  geom_text(aes(label=participant), vjust=1.5, color="black",
            position = position_dodge(.9), size=2.6)+
  scale_fill_brewer(palette="Paired")+
  theme_minimal()+
  labs(title="Do you ever take your own blood pressure?")
```




```
#In general would you say your Health is?

df <- data.frame(Category=rep(c("Excellent", "Fair","Good","Poor", "Verygood"), each=4),
                 Intervention=rep(c("Control_Base","Control_End","Treatment_Base","Treatment_End"),5),
                 participant=c(4.9, 4.1, 2.3, 7.7, 18.5, 12.3, 25.6, 14.1, 58.0, 65.8,
                               51.2, 53.8, 3.7, 0.0, 3.5, 0.0, 14.8, 17.8, 17.4, 24.4))
head(df)
```

```
##    Category   Intervention participant
## 1 Excellent   Control_Base         4.9
## 2 Excellent    Control_End         4.1
## 3 Excellent Treatment_Base         2.3
## 4 Excellent  Treatment_End         7.7
## 5      Fair   Control_Base        18.5
## 6      Fair    Control_End        12.3
```

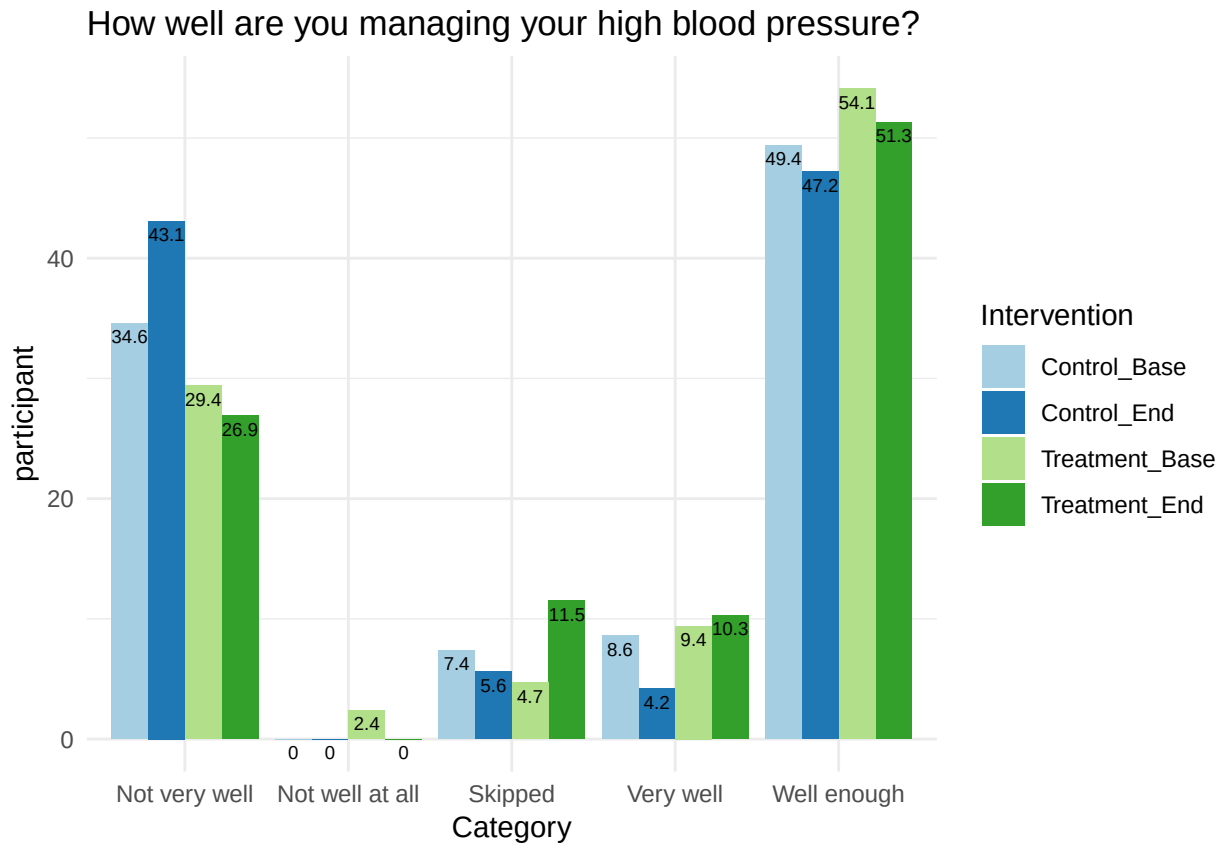
```
ggplot(data=df, aes(x=Category, y=participant, fill=Intervention)) +
  geom_bar(stat="identity", position=position_dodge(),width=.9)+
  geom_text(aes(label=participant), vjust=1.5, color="black",
            position = position_dodge(.9), size=2.6)+
  scale_fill_brewer(palette="Paired")+
  theme_minimal()+
  labs(title="In general would you say your Health is?")
```




```
#How well are you managing your high blood pressure?

df <- data.frame(Category=rep(c("Not very well", "Not well at all","Skipped", "Very well", "Well enough
                 Intervention=rep(c("Control_Base","Control_End","Treatment_Base","Treatment_End"),5),
                 participant=c(34.6, 43.1,   29.4,   26.9, 0.0,  0.0,    2.4,    0.0, 7.4,       5.6,
head(df)
```

```
##          Category   Intervention participant
## 1   Not very well   Control_Base        34.6
## 2   Not very well    Control_End        43.1
## 3   Not very well Treatment_Base        29.4
## 4   Not very well  Treatment_End        26.9
## 5 Not well at all   Control_Base         0.0
## 6 Not well at all    Control_End         0.0
```

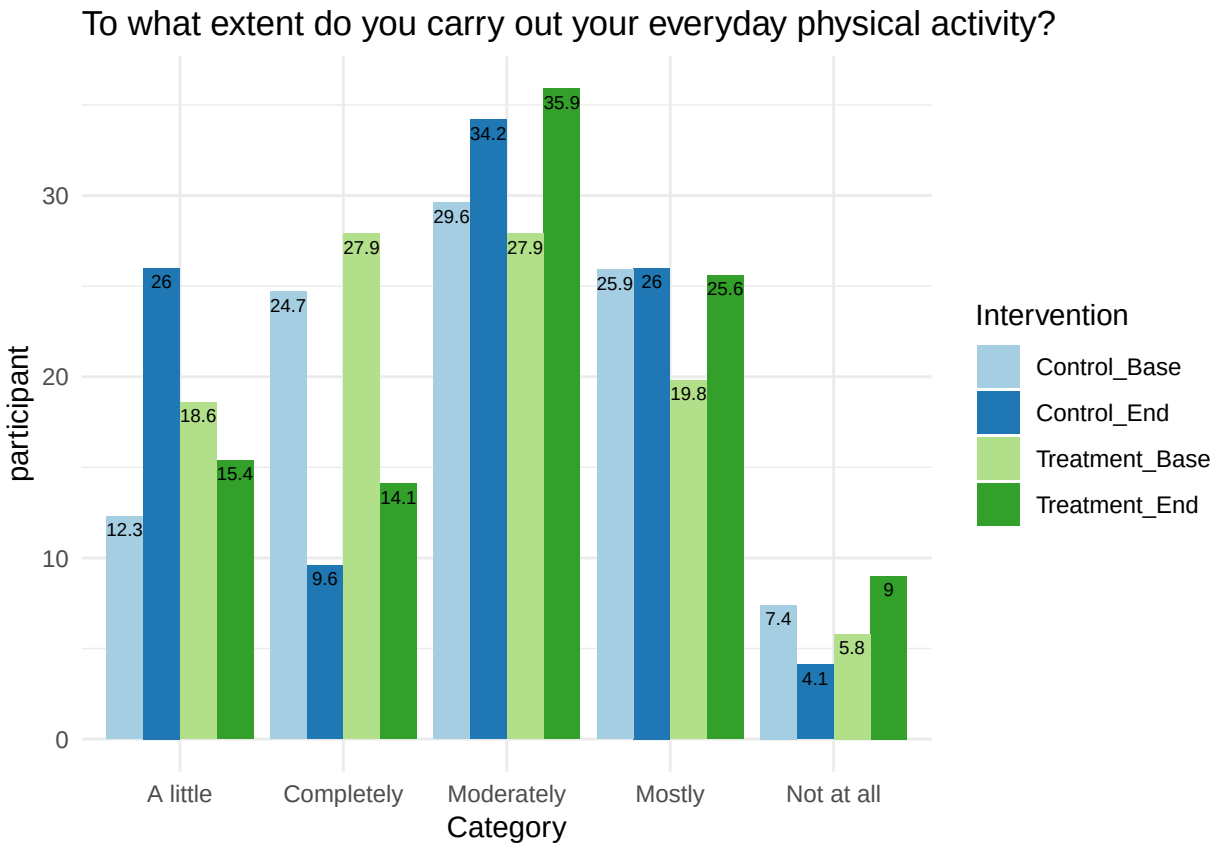
```
ggplot(data=df, aes(x=Category, y=participant, fill=Intervention)) +
  geom_bar(stat="identity", position=position_dodge(),width=.9)+
  geom_text(aes(label=participant), vjust=1.5, color="black",
            position = position_dodge(.9), size=2.6)+
  scale_fill_brewer(palette="Paired")+
  theme_minimal()+
  labs(title="How well are you managing your high blood pressure?")
```




```
#To what extent are you able carry out your everyday physical activity?

df <- data.frame(Category=rep(c("A little", "Completely","Moderately", "Mostly", "Not at all"), each=4),
                 Intervention=rep(c("Control_Base","Control_End","Treatment_Base","Treatment_End"),5),
                 participant=c(12.3, 26.0,   18.6,   15.4, 24.7, 9.6,    27.9, 14.1, 29.6,   34.2,   27.9
head(df)
```

```
##     Category   Intervention participant
## 1   A little   Control_Base        12.3
## 2   A little    Control_End        26.0
## 3   A little Treatment_Base        18.6
## 4   A little  Treatment_End        15.4
## 5 Completely   Control_Base        24.7
## 6 Completely    Control_End         9.6
```

```
ggplot(data=df, aes(x=Category, y=participant, fill=Intervention)) +
  geom_bar(stat="identity", position=position_dodge(),width=.9)+
  geom_text(aes(label=participant), vjust=1.5, color="black",
            position = position_dodge(.9), size=2.6)+
  scale_fill_brewer(palette="Paired")+
  theme_minimal()+
  labs(title="To what extent do you carry out your everyday physical activity?")
```




```
#How much time do you usually spend doing moderate physical activity?

df <- data.frame(Category=rep(c("Total participant", "0-30mins","31-60mins", "61-120mins", "121-300mins
                 Intervention=rep(c("Control_Base","Control_End","Treatment_Base","Treatment_End"),5),
                 participant=c(50,   36, 47, 59, 41, 27,  37,  53,  7,   9,   7,     6, 2,   0,  1,  0, 
head(df)
```

```
##            Category   Intervention participant
## 1 Total participant   Control_Base          50
## 2 Total participant    Control_End          36
## 3 Total participant Treatment_Base          47
## 4 Total participant  Treatment_End          59
## 5          0-30mins   Control_Base          41
## 6          0-30mins    Control_End          27
```

```
ggplot(data=df, aes(x=Category, y=participant, fill=Intervention)) +
  geom_bar(stat="identity", position=position_dodge(),width=.9)+
  geom_text(aes(label=participant), vjust=1.5, color="black",
            position = position_dodge(.9), size=2.6)+
  scale_fill_brewer(palette="Paired")+
  theme_minimal()+
  labs(title="How much time do you usually spend doing moderate physical activity?")
```