Statistical Inference: Non Parametric Tests Assignment

BACKGROUND:

In a randomized control trial, 32 patients were divided into two groups: A and B. Group A received test drug whereas group B received placebo. The variable of interest was Numerical Pain Rating Scale (NPRS) before treatment and after 3 days of treatment. (Higher number indicates more pain)

QUESTIONS-

1. Import NPRS DATA and name it as pain_nprs. Find median NPRS before and after treatment.
2. Is post treatment NPRS score significantly less as compared to 'before treatment' NPRS score for Group A?
3. Is post treatment NPRS score significantly less as compared to 'before treatment' NPRS score for Group B?
4. Is the change in NPRS for group 'A' significantly different than group 'B'?
5. Present change in NPRS for each group using box-whisker plot.

SOLUTIONS

#1. Import NPRS DATA and name it as pain_nprs. Find median NPRS before and after treatment.

```
pain_nprs<-read.csv(file.choose())
head(pain_nprs)
str(pain_nprs)

md_nprs_before<-median(pain_nprs$NPRS_before)
md_nprs_before

md_nprs_after<-median(pain_nprs$NPRS_after)
md_nprs_after
```

#2. Is post treatment NPRS score significantly less as compared to 'before treatment' NPRS score for Group A?

```
groupA<-subset(pain_nprs,Group=="A")

wilcox.test(groupA$NPRS_after,groupA$NPRS_before,data=pain_nprs,
alternative="less")
```

#Interpretation:Since p-value is less than 0.05, post treatment NPRS score is significantly less as compared to 'before treatment' NPRS score for Group A

#3. Is post treatment NPRS score significantly less as compared to ‘before treatment’ NPRS score for Group B?

```
groupB<-subset(pain_nprs,Group=="B")

wilcox.test(groupB$NPRS_after,groupB$NPRS_before,data=pain_nprs,
alternative="less")
```

#Interpretation:Since p-value is less than 0.05, post treatment NPRS score is significantly less as compared to 'before treatment' NPRS score for Group B

#4. Is the change in NPRS for group ‘A’ significantly different than group ‘B’?

```
pain_nprs$change<-(pain_nprs$NPRS_before-pain_nprs$NPRS_after)
wilcox.test(change~Group,data=pain_nprs,alternative="two.sided")
```

#Interpretation:Since p-value is greater than 0.05, change in NPRS for group ‘A’ is not significantly different than group ‘B’

#5. Present change in NPRS for each group using box-whisker plot.

```
boxplot(change~Group,data=pain_nprs,main="Change in pain
level",xlab="GROUP",ylab="CHANGE",col="red")
```