

Key-points for MMPI Analysis

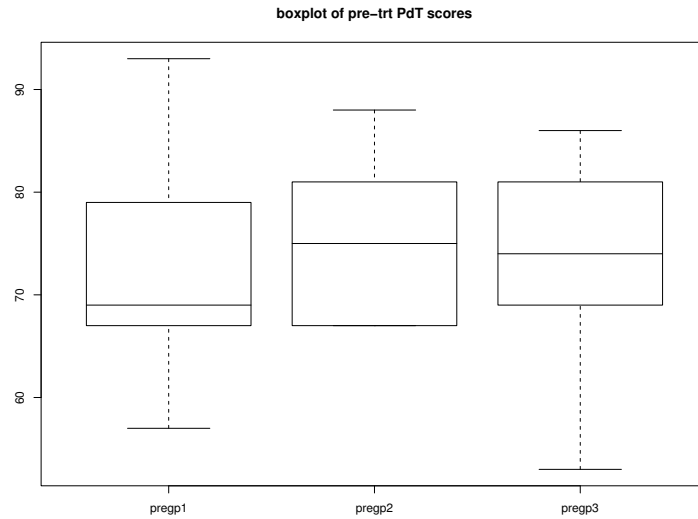
Zhenglei Gao

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1 EDA

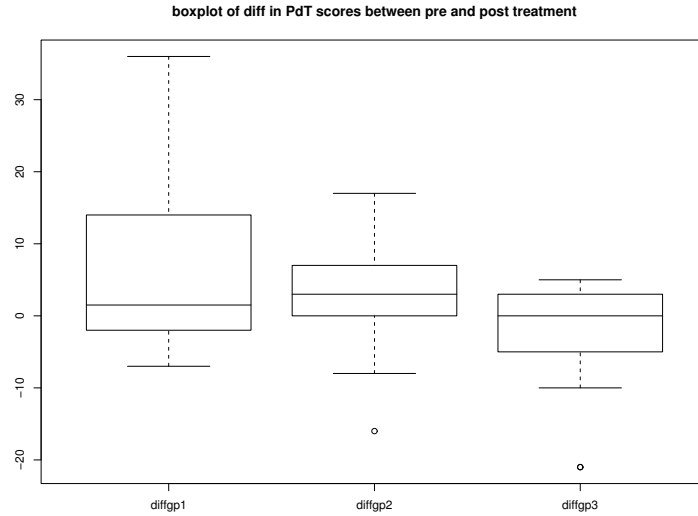
1. Pre-treatment group difference:

Based only on the graphical analysis as Fig1 shows, it appears that the groups are similar before treatment. It is not appropriate to use histogram plots difference to say that they are not the same since the sample size for each group is only 14.



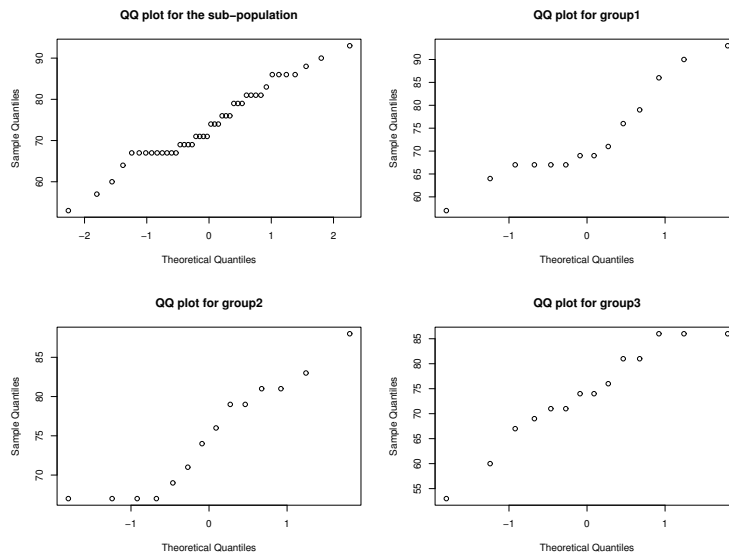
2. Post-trt group diff and trt effectiveness:

Since the data are paired, that is, when a person has high pre-trt score, he might have high post-trt score, we use $\text{diff} = \text{Pre} - \text{Post}$ to do analysis. Again, based only on the graphical analysis, we can sort of conclude that Trt 1 and 2 are positively effective, while Trt 3 is not. And it seems Trt 1 is more effective in reducing the Pd T scores. But all those are not clearly shown in Fig 2. There are some issues suggested by the plot, such as the changes are more spread in group 1 than the others. So further statistical analysis, including anova, t-test (assuming normal assumption holds), etc., should be done to get decisive conclusions, which is out of the requirement of hw1.



3. Normal assumption and race issues:

Examine the QQ plot to check the normal assumption. We find that the lines are not exactly linear, the normal assumptions should be suspected. And if the data is not normal, all the tests and statistics based on this assumption are not proper at all. Lack of race information



can be an issue if the race factor does interact with the treatment. If not, then the race is not a problem since we use the difference between pre and post-trt instead of directly using the post and pre-trt scores.

2 Further Statistical Analysis

For advanced students, an ANOVA can be done by construct dummy variables to test the group mean difference and the treatment effectiveness. Heteroscedasticity of variances can be tested too. Normal assumptions can be checked. To avoid the normal assumption, a nonparametric Wilcoxon sum rank test can be done.

3 NOTE

The commands used in your program are not supposed to be included in the report, it can be attached to the Appendix. Necessary figures should be attached to illustrate your statements. Whenever you have a conclusion , give the explanation.