Paired t-test

Saturday, December 2, 2023 9:21 AM

Treat	Prewt	Postwt
FT	83.8	95.2
FT	83.3	94.3
FT	86	91.5
FT	82.5	91.9
FT	86.7	100.3
FT	79.6	76.7
FT	76.9	76.8
FT	94.2	101.6

$d = Prewt - Postwt$

Effective Vs not Effective

$D < 0$ $D \geq 0$

$H_0: D \geq 0$ $H_1: D < 0$

```
result = ttest_rel(FT['Prewt'], FT['Postwt'],
                   alternative="less")
print("P-Value =", result[1])
```

If $d = Postwt - Prewt$

Eff Vs not Effect

$D > 0$ $D \leq 0$

$H_0: D \leq 0$ $H_1: D > 0$

```
result = ttest_rel(FT['Postwt'], FT['Prewt'],
                   alternative="greater")
print("P-Value =", result[1])
```

A group of seven patients of rheumatic heart disease with distention of abdomen due to ascites, affecting breathing capacity were treated. Can we say that treatment has improved breathing capacity? Data is in file Rheumatic.csv

Maximum breathing capacity (L/min for 7 patients)	1	2	3	4	5	6	7
Before Treatment	102	89	32	82	36	56	79
After Treatment	132	116	50	82	61	64	92

$d = Bef - After$ Eff :- $D < 0$ not Eff : $D \geq 0$

$H_0: D \geq 0$ $H_1: D < 0$

38. Using the data in the Excel file *Ohio Education Performance*, test the hypotheses that the mean difference in writing and reading scores is zero and that the mean difference in math and science scores is zero. Use the paired-sample procedure.

a) d = Writing − Reading

b) d = Maths − Science

$H_0: D = 0$ Vs $H_1: D \neq 0$