

A= 100.07, 90.6, 103.45, 95.7, 110, 125.28, 121.32, 114.46

B= 90.54, 105.05, 84.15, 84, 92.7, 100, 88.45, 77.33

C= 108, 107.25, 92.46, 105.3, 83.5, 100.48, 80.24, 97.08

mean of A i.e. $A' = 860.88/8 = 107.61$

mean of B i.e. $B' = 722.22/8 = 90.28$

mean of C i.e. $C' = 774.31/8 = 96.79$

$A-A' = -7.54, -17.01, -4.16, -11.91, 2.39, 17.67, 13.71, 6.85$

$B-B' = 0.26, 14.77, -6.13, -6.28, 2.42, 9.72, -1.83, -12.95$

$C-C' = 11.21, 10.46, -4.33, 8.51, -13.29, 3.69, -16.55, 0.29$

$\text{var } A = \sum(A-A')^2/n$

$= 1058.173/8$

$= 132.27$

therefore, similarly

$\text{var } B = 70.83$

$\text{var } C = 98.81$

FIRST: lets Assume For,

for Drug A and Drug B,

$H_0 = \text{var of Drug A} = \text{Var of Drug B}$ (Null Hypothesis)

$H_1 = \text{var of Drug A} > \text{Var of Drug B}$ (Alternative Hypothesis)

Now:

$F\text{-stat.} = \text{Var of Drug A} / \text{Var of Drug B}$

$= 132.27/70.83$

$= 1.87$

Lets assume....Significance=0.05;

Degree of freedom for Drug A(D_{fa})= n of A-1= 8-1= 7

Degree of freedom for Drug B(D_{fb})= n of B-1= 8-1= 7

then,

$F\text{-critical} (0.05, 7, 7) = 3.79$ (using online critical value calculator)

as $F\text{-critical} > F\text{-statistic}$,

i.e. $F\text{-test} < F\text{-critical}(0.05, 7, 7)$

we do not have enough evidence to reject Null Hypothesis

so we accept the Null Hypothesis.

i.e. $\text{var of Drug A} = \text{Var of Drug B}$

Second:

for Drug A and Drug C,

$H_0 = \text{var of Drug A} = \text{Var of Drug C}$ (Null Hypothesis)

$H_1 = \text{var of Drug A} > \text{Var of Drug C}$ (Alternative Hypothesis)

Now:

F-stat. = $\text{Var of Drug A} / \text{Var of Drug C}$

$$= 132.27 / 98.81$$

$$= 1.34$$

Lets assume....Significance=0.05;

Degree of freedom for Drug A (D_{fa}) = $n \text{ of A} - 1 = 8 - 1 = 7$

Degree of freedom for Drug C (D_{fc}) = $n \text{ of C} - 1 = 8 - 1 = 7$

then,

F-critical (0.05,7,7)=3.79

as F-critical > F-statistic,

i.e. F-test < F-critical(0.05,7,7)

we do not have enough evidence to reject Null Hypothesis

so we accept the Null Hypothesis.

i.e. $\text{var of Drug A} = \text{Var of Drug C}$

Third:

for Drug B and Drug C,

$H_0 = \text{var of Drug B} = \text{Var of Drug C}$ (Null Hypothesis)

$H_1 = \text{var of Drug B} > \text{Var of Drug C}$ (Alternative Hypothesis)

Now:

F-stat. = $\text{Var of Drug B} / \text{Var of Drug C}$

$$= 70.83 / 98.81$$

$$= 0.72$$

Lets assume....Significance=0.05;

Degree of freedom for Drug B (D_{fb}) = $n \text{ of A} - 1 = 8 - 1 = 7$

Degree of freedom for Drug C (D_{fc}) = $n \text{ of C} - 1 = 8 - 1 = 7$

then,

F-critical (0.05,7,7)=3.79

as F-critical > F-statistic,

i.e. $F\text{-test} < F\text{-critical}(0.05, 7, 7)$

we do not have enough evidence to reject Null Hypothesis
so we accept the Null Hypothesis.

i.e. $\text{var of Drug B} = \text{Var of Drug C}$

so, from above conclusions and analysis of variances of 3 Drugs A, B and C respectively
they all performed almost same and had the same cure rate approximately.