เอกสารอ้างอิง

เติมศรี ชำนิจารกิจ และยุพา อ่อนท้วม "การใช้สถิติวิเคราะห์ในด้านงานวิจัยทาง-วิทยาศาสตร์การแพทย์" สถาบันวิจัยวิทยาศาสตร์การแพทย์ จุฬาลงกรณมหา-วิทยาลัย; (อัดสำเนา) 2521

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ภาคผนวก

การวิเคราะห์วาเหรียนซ์

ข้อมูลแบบแจงทางเดียวและวิธีวิเคราะห์วาเหรียนซ์เมื่อมีจำนวนค่าสังเกตเท่ากัน

วิธีคำนวณ

ให้ x_{ij} = เป็นค่าสังเกตที่ j ใน treatment ที่ i

$i = 1, 2 \ldots\ldots t, \quad j = 1, 2, \ldots\ldots, 8$

x_i = เป็นผลรวมของ treatment ที่ i

t = เป็นจำนวน treatment

r = จำนวนซ้ำในแต่ละ treatment

1. คำนวณ

correction term (CT) = $\frac{x^2}{rt} = (\sum_{ij} x_{ij})^2/rt$

2. total SS = $\sum_{ij} x_{ij}^2 - CT$

3. treatment SS = $(x_1^2 + x_2^2 + \ldots\ldots + x_t^2) - CT$

ซึ่งบางทีเรียกว่า among groups SS

4. Error SS = Total SS - treatments SS

ซึ่งบางทีเรียกว่า within group SS หรือ residual SS

ค่าของ Error SS คำนวณได้จาก within treatment SS แต่ละ component จะมี degree of freedom = $t(r-1)$

ดังนั้น Error SS = $\sum_i \left(\sum_j x_{ij}^2 - \frac{x_i^2}{r} \right)$ .....(1)

Source of Variation	df	Definition	Working	Mean Square	F
Treatments	t-1	$r \sum_i (x_1 - x...)^2$	$\sum_i x_i^2 - \frac{x_{...}^2}{rt}$	T = SS/df	$T/_E$
Error	t(r-1)	$1 \sum_j x_{ij}^2 - x_i^2/r$	by sustraction	E = SS/df	
Total	r(t-1)	$\sum_{ij} (x_{ij} - x_{ij})^2$	$\sum_{ij} x_{ij}^2 - \frac{x_{...}^2}{rt}$		

นำค่า F ที่คำนวณได้มาเปรียบเทียบกับค่า F ในตารางที่ df = t-1 และ t (r-1)

The Paired " t " test

วิธีคำนวณ

d = ความแตกต่างระหว่างการทดลองสองวิธีในแต่ละตัวอย่าง

$\bar{d} = \frac{\underline{d}}{n}$ (n = จำนวนตัวอย่างทั้งหมด)

$$S.D. = \sqrt{\frac{(d-\bar{d})^2}{n-1}}$$

$$S.D.^2 = \frac{\Sigma (d-\bar{d})^2}{n-1}$$

$$S.E. \text{ of mean} = \frac{S.D.}{\sqrt{n}}$$

$$\pm t = \frac{\bar{d}}{SE\bar{d}}$$

คำนวณได้ค่า t นำไปเปิดตาราง "t" เพื่อหาค่า Probability ใช้ degree of freedom ที่ n-1

ประวัติการศึกษา

ชื่อ	นางสาวไพฉิน แตงแก้ว
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