

Date / /

M T W T F S S

Content:

9.10

$$H_0: \mu_1 = \mu_2 = \mu_3, n = 5 + 6 + 6 = 17$$

$$SST = \sum_{i=1}^3 \sum_{j=1}^n y_{ij}^2 - \frac{T^2}{n} = 39.159 - 33.264 = 5.895$$

$$SSTR = \sum \left(\frac{T_k^2}{n_k} \right) - \frac{T^2}{n} = 37.873 - 33.264 = 4.609$$

$$SSE = SST - SSTR = 1.286$$

變異來源	平方和	自由度	均方	F檢定值
減肥藥	$SSTR = 4.609$	$3-1=2$	$MSTR = 2.305$	$\frac{2.305}{0.092} = 25.05$
隨機誤差	$SSE = 1.286$	$17-3=14$	$MSE = 0.092$	
總和	$SST = 5.895$	$17-1=16$		

聯合信賴區間計算

$$m = \binom{3}{2} = 3, \frac{\alpha}{3m} = \frac{0.05}{2 \times 3} = 0.0083$$

$$t_{\alpha/2m}(14) = t_{0.0083}(14) = 2.718$$

$$S = \sqrt{MSE} = \sqrt{0.092} = 0.303$$

95% 聯合信賴區間:

$$\mu_2 - \mu_1 = (1.53 - 0.63) \pm 2.718 \times 0.303 \times \sqrt{\frac{1}{6} + \frac{1}{6}} = (0.401, 1.399) \text{ 不包含 } 0$$

$$\mu_3 - \mu_2 = (1.91 - 1.53) \pm 2.718 \times 0.303 \times \sqrt{\frac{1}{6} + \frac{1}{6}} = (-0.095, 0.855) \text{ 包含 } 0$$

$$\mu_3 - \mu_1 = (1.91 - 0.63) \pm 2.718 \times 0.303 \times \sqrt{\frac{1}{6} + \frac{1}{6}} = (0.781, 1.779) \text{ 不包含 } 0$$

① 2 AND 3 無顯著差異, But 方法 1, 2 AND 1, 3 有差異

9.12

$$m = \binom{3}{2} = 3, F_{0.05}(3-1, 17-3) = 3.74$$

$$S = \sqrt{MSE} = \sqrt{0.092} = 0.303, \sqrt{(k-1)F} = \sqrt{(3-1)3.74} = 2.73$$

95% 聯合信賴區間:

$$\mu_2 - \mu_1 = (1.53 - 0.63) \pm 2.73 \times 0.303 \times \sqrt{\frac{1}{6} + \frac{1}{6}} = (0.399, 1.401) \text{ 不包含 } 0$$

$$\mu_3 - \mu_2 = (1.91 - 1.53) \pm 2.73 \times 0.303 \times \sqrt{\frac{1}{6} + \frac{1}{6}} = (-0.098, 0.858) \text{ 包含 } 0$$

$$\mu_3 - \mu_1 = (1.91 - 0.63) \pm 2.73 \times 0.303 \times \sqrt{\frac{1}{6} + \frac{1}{6}} = (0.779, 1.781) \text{ 不包含 } 0$$

只有減肥藥 2, 3 之間無差異, 信賴區間較寬