SAWA UNIVERSITY

الاحصاء - SPSS

المحاضرة السابعة

جامعـــــــة ســـــــــاوة

الاهلية

كليـــــة التقنيـــات الصحيـة

والطبيـة

قسم تقنيات المختبرات

الطبية

المرحلـــــــــــــة

الثانية.

Sawa University

College of health and medical techniques

Department of Medical Laboratories

. 2nd Stage

تدريسي المادة : م.م سلام النجيب

محاضرة رقم ٧

Lecture No. 7

الجانب النظري

Theoretical

1. Range

Exercise 1: The following are the systolic blood pressures (mmHg) of 5 patients: 120, 130, 115, 125, and 140. Find the range.

Solution: Range = Max value – Min value = 140 – 115 = 25 mmHg.

Exercise 2: The following are the body temperatures (°F) of 6 patients: 98.2, 99.1, 98.7, 98.4, 99.2, 98.9. Calculate the range.

1. Range

Exercise 3: The following are the ages of 7 patients: 50, 60, 55, 70, 45, 65, 75. Find the range.

Exercise 4: The cholesterol levels (mg/dL) of 6 patients are: 180, 200, 195, 185, 210, and 220. Find the range.

Exercise 5: The following are the heart rates (bpm) of 5 patients: 72, 85, 90, 78, and 76. Find the range.

2. Variance

Exercise 1: For the blood pressure values (mmHg): 120, 130, 115, 125, 140, calculate the variance.

Solution: Mean = (120 + 130 + 115 + 125 + 140) / 5 = 126.

Variance=S^2 = [(120−126)² + (130−126)² + (115−126)² + (125−126)² + (140−126)²] / 5

Variance = [36 + 16 + 121 + 1 + 196] / 5 = 370 / 5 = 74 $mmHg^2$.

2. Variance

Exercise 2: For the following body temperatures (°F): 98.2, 99.1, 98.7, 98.4, 99.2, calculate the variance.

Exercise 3: The following are the heart rates (bpm): 72, 85, 90, 78, 76. Find the variance.

Exercise 4: For the following cholesterol levels (mg/dL): 180, 200, 195, 185, 210, calculate the variance.

Exercise 5: The following are the glucose levels (mg/dL): 95, 100, 85, 110, 105. Find the variance.

3. Standard Deviation

Exercise 1: For the blood pressure values (mmHg): 120, 130, 115, 125, and 140, calculate the standard deviation.

Mean = (120 + 130 + 115 + 125 + 140) / 5 = 630 / 5 = 126 mmHg.

Variance=S^2 = $[(120-126)^2 + (130-126)^2 + (115-126)^2 + (125-126)^2 + (140-126)^2] / 5$

Variance = [36 + 16 + 121 + 1 + 196] / 5 = 370 / 5 = 74 $mmHg^2$.

Standard deviation = $\sqrt{}$ Variance = $\sqrt{74} \approx 8.6$ mmHg.

3. Standard Deviation

Exercise 3: The following are the heart rates (bpm): 72, 85, 90, 78, 76. Find the standard deviation.

Exercise 4: For the following cholesterol levels (mg/dL): 180, 200, 195, 185, 210, calculate the standard deviation.

Exercise 5: The following are the glucose levels (mg/dL): 95, 100, 85, 110, 105. Find the standard deviation.

4. Coefficient of Variation

Exercise 1: For the blood pressure values (mmHg): 120, 130, 115, 125, and 140, find the coefficient of variation.

Solution:

Mean = (120 + 130 + 115 + 125 + 140) / 5 = 630 / 5 = 126 mmHg.

Variance=S^2 = $[(120-126)^2 + (130-126)^2 + (115-126)^2 + (125-126)^2 + (140-126)^2] / 5$

Variance = [36 + 16 + 121 + 1 + 196] / 5 = 370 / 5 = 74 $mmHg^2$.

4. Coefficient of Variation

Standard deviation = $\sqrt{}$ Variance = $\sqrt{74} \approx 8.6$ mmHg.

Coefficient of Variation = $(8.6 / 126) * 100 \approx 6.83\%$

4. Coefficient of Variation

Exercise 2: The following are the body temperatures (°F): 98.2, 99.1, 98.7, 98.4, 99.2. Find the coefficient of variation.

Exercise 3: The following are the heart rates (bpm): 72, 85, 90, 78, 76. Find the coefficient of variation.

Exercise 4: For the following cholesterol levels (mg/dL): 180, 200, 195, 185, 210, calculate the coefficient of variation.

Exercise 5: The following are the glucose levels (mg/dL): 95, 100, 85, 110, 105. Find the coefficient of variation.