Frequencies and Descriptives

"N" provides the sample size for the entire data set. "Missing" refers to the number of entries that are blank.

Descriptives

	score
N	8
Missing	0
Mean	4.000
Standard deviation	3.117
Variance	9.714
25th percentile	2.250
50th percentile	4.000
75th percentile	5.500

Frequencies

Frequencies of score

Levels	Counts
0	2
3	1
4	2
5	1
7	1
9	1

The first column lists all of the actual scores in the entire data set. "Frequency" indicates the number of times that score exists. For example, the score 4 was listed 2 times.

The "Mean", "Standard Deviation", and "Variance" are all calculated as unbiased estimates of the respective population parameter. Here, the mean is determined as the average of the scores weighted by their frequencies:

$$M = \frac{\Sigma(fY)}{N} = \frac{(2 \times 0) + (1 \times 3) + (2 \times 4) + (1 \times 5) + (1 \times 7) + (1 \times 8)}{8} = 4$$

The "Variance" and "Std. Deviation" are both functions of the Sum of Squares (not shown in the output) of the scores in the frequency distribution:

$$SS = \sum f(Y - M)$$
$$SS = 2(0 - 4)^2 + 1(3 - 4)^2 + 2(4 - 4)^2 + 1(5 - 4)^2 + 1(7 - 4)^2 + 1(8 - 4)^2 = 68$$

Then, the "Variance" (also known as Mean Squares) is calculated as:

$$MS = \frac{SS}{(N - 1)} = \frac{68}{7} = 9.714$$

Finally, the "Std. Deviation" is determined by:

$$SD = \sqrt{MS} = \sqrt{9.71} = 3.117$$

"Percentiles" provide the scores associated with particular percentile ranks. For example, the 50th percentile is the score in the following position:

$$Position = PR(N + 1) = .50(8 + 1) = 4.5$$

Thus, the score at the 50th percentile is the 4.5th score in the frequency distribution – a score of 4.