Frequencies and Descriptives

Group Statistics CI % : 95

Variable	N	M	SD	SE	Lower	Upper
Total	8	4.000	3.117	1.102	1.394	6.606

Group Statistics

Variable	N	Min	Max	25 %tile	50 %tile	75 %tile
Total	8	0.000	9.000	0.750	4.000	6.500

Frequency Distribution

Value	f	%	Cum f	Cum %	z	PR
0.000	2	25.000	2	25.000	-1.283	0.100
3.000	1	12.500	3	37.500	-0.321	0.374
4.000	2	25.000	5	62.500	0.000	0.500
5.000	1	12.500	6	75.000	0.321	0.626
7.000	1	12.500	7	87.500	0.963	0.832
9.000	1	12.500	8	100.000	1.604	0.946

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

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

The Variance and Standard 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 Standard Deviation ("SD") 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.

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

The "%" column provides the percentage of cases for each possible score. For example, of the 8 scores in the entire data set, the score of 4 was listed 2 times and 2/8 is 25.0%.

Cumulative Frequency ("Cum) and Cumulative Percent ("Cum") involve the sum of all frequencies or percentages up to and including the row in question. For example, 62.5% of scores were a 4 or smaller. Similarly, 37.5% were a 3 or smaller.