Common Statistical Formulas

Statistical formulas can be defined as the group of statistical symbols used to make a statistical statement. Here we will discuss popular formulas and what they stand for.

Population Mean

The term population mean, which is the parameter of a given population, is represented by:

$? = (? X_i) / N$

The symbol '?' represents the population mean. The symbol '$? X_i$' represents the overall sum of all variables present in the population (say, in this case) $X_1 X_2 X_3$ and so on. The symbol 'N' represents the overall size of the population.

Population Standard Deviation

The parameter called population standard deviation is represented by:

$? = sqrt[? (X_i - ?)^2 / N]$

The symbol '?' represents the population standard deviation. The term 'sqrt' used in this statistical formula denotes square root. The term '$? (X_i - ?)^2$' used in the statistical formula represents the sum of the squares of the deviation of the variables from their population mean.

Population Variance

The parameter called population variance is represented by:

$?^2 = ? (X_i - ?)^2 / N$

The symbol '$?^2$' represents the population variance.

Applied Statistics

A subject called applied statistics is one branch of statistics that involves formulas for simple random sampling.

Sample Mean

The statistic called sample mean is used in simple random sampling and is represented by:

In this formula, the symbol represents the sample mean. The symbol '? x_i' used in this formula represents the overall sum of variables present in the sample (say, in this case) x_1 x_2 x_3 and so on. The symbol 'n,' which is divided by the overall sum, represents the overall size of the sample.

Sample Standard Deviation

The statistic called sample standard deviation, used in simple random sampling, is represented by:

$s = \text{sqrt} [? (x_i -)^2 / (n - 1)]$

The term '? (x_i -)^2' used in the formula represents the sum of the squares of the deviation of the variable from their sample mean.

Variance of the Sample Proportion

The statistic called variance of the sample proportion is represented by:

$s_p^2 = pq / (n - 1)$

The symbol 's_p^2' represents the variance of the sample proportion. The term 'p' represents the proportion of the sample that acquires a particular characteristic or an attribute. The term 'q' represents that proportion of samples that do not acquire that particular characteristic or attribute. The term 'q' also has a statistical formula, and it is q=(1-p).

Pooled Sample Standard Deviation

The statistic called pooled sample standard deviation is represented by:

$s_p = \text{sqrt} [(n_1 - 1) * s_1^2 + (n_2 - 1) * s_2^2] / (n_1 + n_2 - 2)]$

The term 's_p' represents the pooled sample standard deviation. The term 'n_1' represents the size of the first sample, and the term 'n_2' represents the size of the second sample that is being pooled with the first sample. The term 's_1^2' in the statistical formula represents the variance of the first sample proportion, and 's_2^2' in the statistical formula represents the variance of the second sample proportion.

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