

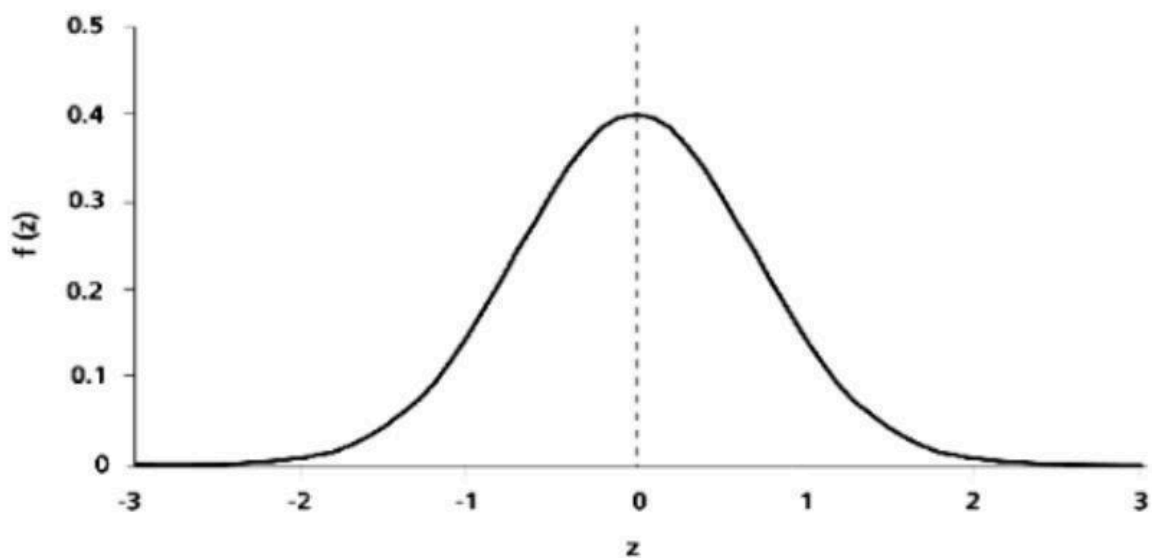
Z SCORE

Z score

Z score describes the position of a raw score in terms of its distance from the mean, when measured in standard deviation units. The Z score is positive if the value lies above the mean.

It is also known as a standard score, because it allows comparison of scores on different kinds of variables by standardizing the distribution. A standard normal distribution (SND) is normally shaped distribution with a mean of zero and a standard deviation (SD) of 1.

Figure 1. A standard normal distribution (SND)

**Definition of Z Score**

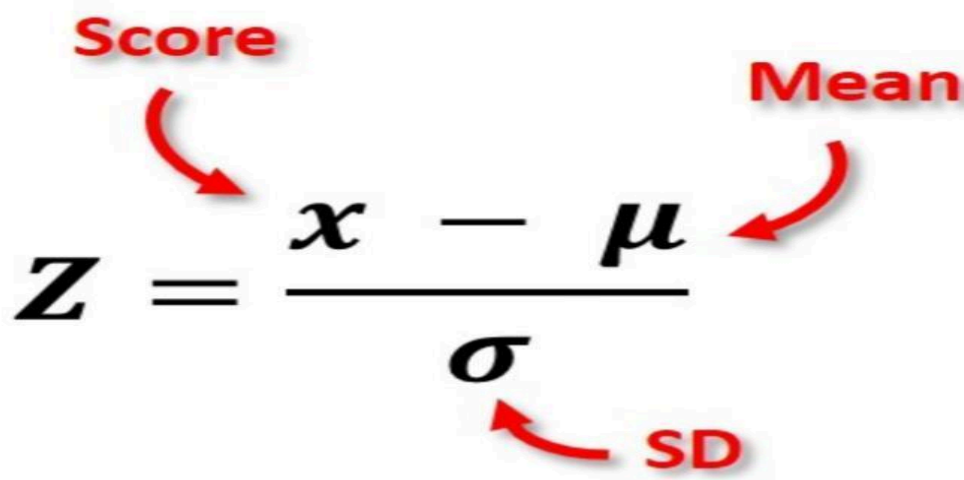
Z score is numerical measurement that describes relationship to the mean of a group of values. Z score is measured in terms of standard deviation from the mean. Z score also sometimes known as the Altman Z score.

Importance of Z Score

It is useful to standardized the values(Rose course)of a normal distribution by converting them into z-scores because:

- It allows researchers to calculate the probability of a score occurring within a standard normal distribution.
- It enables us to compare two scores that are from different samples.

Z Score Formula



The image shows the Z score formula with red annotations. The formula is $Z = \frac{x - \mu}{\sigma}$. A red arrow points from the word "Score" to the variable x . Another red arrow points from the word "Mean" to the Greek letter μ . A third red arrow points from the letters "SD" (Standard Deviation) to the Greek letter σ .

$$Z = \frac{x - \mu}{\sigma}$$

Interpretation of Z Score

If the Z Score is +positive indicates the raw score is higher than the mean average. For example, if a score is equal to +1, it is 1 standard deviation above the main.

Z SCORE

A negative Z score reveals the raw score is below the mean average. For example, if a z score is equal to -2 , it is 2 standard deviations below the mean. Another way to interpret Z scores is by creating a standard normal distribution (also known as the Z score distribution for probability distribution).

Reference

1. McLeod, S. A. (2019, May 17). Z score: definition, calculation and interpretation. Simply Psychology
2. www.simplypsychology.org/zscore.html