Statistical Symbols and Abbreviations

Symbol or abbreviation	Explanation
α	Probability of a type I error, or rejection level which is typically 0.05
β	Probability of Type II error, which is typically 0.20 (= 1 – power)
μ	Mean or average value
σ	Standard deviation (for a population)
σ^2	Variance (for a population)
$var(x)$	Variance of variable, x
χ^2	Chi-square, fitting
Σ	Sum of the data
Φ (or φ)	Phi coefficient, which is the correlation between 2 by 2 matrix elements
ANOVA	Analysis of variance
CI	Confidence interval, an estimated range of values which is likely to include an unknown population parameter
df	Degrees of freedom
F	Variance ratio (F distribution), the distribution of the ratio of two independent estimates of variance
H_O	Null hypothesis, assuming no significance with the hypothesis
H_A	Alternative hypothesis
N	Sample size, the number of whole population
n	The number in a subset
NS	Not significant
OR	Odds ratio, the odds that an outcome will occur provided a particular exposure, compared with the odds of the outcome occurring without the exposure
P	Probability
r (for a sample) ρ (for a population)	Pearson correlation coefficient (-1 to +1), also called Pearson product moment correlation
RR	Relative risk
r_s	Spearman's rank correlation coefficient
R	Multiple correlation

R^2	Multiple correlation squared
s	Standard deviation (for a sample mean)
s^2	Variance (for a sample mean)
SD	Standard deviation (for a sample)
SEM	Standard error of the mean
t	Student's t-test statistics
X	Raw score (for a population)
x	Raw score (for a sample)
$\overline{X}$	Arithmetic mean of a population
$\overline{x}$	Arithmetic mean of a sample
Z	Observation in standard form
P(A)	Probability of event A
P(A∩B)	Probability that of events A and B
P(A∪B)	Probability that of events A or B
P(A|B)	Probability of event A provided event B occurred
z_x	Standard score, which is equal to $(x - \overline{x})/s_x$
$N(\mu, \sigma^2)$	Normal distribution or Gaussian distribution
Poisson(λ)	Poisson distribution