

Glossary of Terms

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In recent years statistical methods in medical research studies have become very important. Increasing number of sophisticated statistical terms have introduced into the terminology of medical literature since few years. For this reason, in this issue I would like to give you explanations about some commonly used terminology.

Samuel Johnson said that "to make dictionaries is a dull work", he may be right but I tried to present you an enjoyable mini-dictionary.

	<i>Typical explanation of some statistical terms</i>	<i>Atypical explanation of some statistical terms</i>
Analysis of Variance (ANOVA)	A general term for analysis that compare means of groups of observations by splitting the total variance of a variable into its component parts, each attributed to a particular factor.	A test to give examine which variants of your experiment give the best results.
Bar chart	A diagram that illustrates the distribution of a categorical or discrete variable by showing a separate horizontal or vertical bar for each category, its length being proportional to the (relative) frequency in that category.	A map of the locations of the nearest taverns.
Box plot	A diagram illustrating the distribution of a variable; it indicates the median, upper and lower quartiles, and, often, the maximum and minimum values.	A cabal planning to hide surreptitiously all data to the investigator's hypotheses in a box for burial.
Case-control study	Groups of individuals with the disease (the cases) and without the diseases (the controls) are identified, and exposures to the risk factors in these groups are compared.	A study where subjects with the condition of interest are paired with matched persons who are expected to control the subjects and make them behave as the investigator wishes.
Clinical trial	Any form of planned experiment on humans that is used to evaluate a new treatment on a clinical outcome.	Malpractice suit.

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	<i>Typical explanation of some statistical terms</i>	<i>Atypical explanation of some statistical terms</i>
Correlation	A general term for interdependence between pairs of variables.	Parent, sibling, or child of subjects.
Discriminant Analysis	A method, similar to logistic regression, which can be used to identify factors significantly associated with a binary response.	A test to see whether the investigator has been discriminated against by the funding agency.
F-distribution	A right skewed continuous distribution characterized by the degrees of freedom of the numerator and denominator of the ratio that defines it; useful for comparing two variances, and more than two means using the analysis of variance.	The proportion of students flunking Intro to Stats.
Fisher's exact Test	A test that evaluates probabilities (i.e. does not rely on approximations to the Chi-squared distribution) in a contingency table (usually a 2x2 table), used when the expected frequencies are small.	A statistical test showing the distribution of trout in the local pond.
Histograms	A diagram that illustrates the (relative) frequency of a continuous variable by using connected bars. The bar's area is proportional to the (relative) frequency in the range specified by the boundaries of the bar.	Plots that cause sneezes and other allergic reactions in researchers.
Logistic regression	The regression relationship between a binary outcome variable and a number of explanatory variables.	A way of figuring out the logistics of getting your study accepted into Turkish Respiratory Journal.
P-value	The probability of obtaining our results, or something more extreme, if the null hypothesis is true.	Results of urinalysis.
Statistical significance	The result of a hypothesis test is statistically significant at a particular level (say 5 %) if we have sufficient evidence to reject the null hypothesis at that level (i.e. when $p < 0.05$).	The holy grail of research; essential to publication, funding, and tenure.
Survival analysis	Examines the time taken for an individual to reach an endpoint of interest (e.g. death) when some data are censored	Strategizing how to get the most money from the funding agency so that your research center doesn't fold.
T-test	Significance test for assessing hypothesis about population means.	Blinded taste comparison of Orange Pekoe, Oolong, and Earl Grey.
Zzz-distribution	A normal distribution with mean zero and unit variance.	The proportion of students staying awake in Intro to Stats

References

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