GLOSSARY OF EBP TERMS

The following is a glossary of terms that may assist with interpreting and critically appraising research articles.

Absolute risk reduction

The difference between the rate of relevant outcomes in the treatment and control groups.

Accuracy (see also Diagnostic accuracy)

The degree to which a measurement represents the true value of the variable measured.

Adjustment (see also Confounding)

A procedure for minimising differences in the composition of populations being compared using statistical methods.

Allocation

The way that subjects are assigned to the different groups in a study (eg drug treatment vs placebo; usual treatment vs no treatment).

Analysis of covariance (ANCOVA)

Statistical test comparing two+ intervention groups whilst controlling or one+ confounding variables.

Analysis of variance (ANOVA)

Statistical test comparing 3 or more intervention groups.

Applicability (see also External validity)

Addresses whether a particular treatment or exposure that showed an overall effect in a study can be expected to convey the same effect for an individual or group in a specific clinical or population setting.

Bias

Deviation of a measurement from the 'true' value leading to either an over or underestimation of the treatment effect. Bias can originate from many different sources, such as allocation of patients, measurement, interpretation, publication and review of data.

Binary outcome

A binary outcome is an outcome where there can only be one of two categories such as "discharged from hospital" or "not discharged from hospital" or suffered an event such "had a heart attack" or "did not have a hear attack".

Blinding

A study protocol that prevents those involved in a clinical study from knowing which treatment groups subjects have been assigned. Blinding of the subjects themselves minimises bias in patient responses; blinding of outcome assessors minimises biasing in measurements.

Case-control study

A study in which a group of patients with a specific outcome are matched with a group of matched controls without the outcome and information is obtained about their past exposure to a factor under investigation.

Case series

Outcome information collected for a series (consecutive or non-consecutive) of patients after a treatment or exposure (ie with no control group). For a pre-test/post-test case series, measures are taken before and after the intervention is introduced to a series of people and are then compared (also known as a 'before-and-after study').

Clinical significance

Magnitude (size) of the treatment effect.

Clinical importance

How big a difference between the average effect in each study group is worthwhile.

Chi square test

Non-parametric test for nominal data, compares observed frequencies to frequencies expected by chance.

Cohort study

A study in which data are obtained from matched groups who have been either exposed or not exposed (controls) to a new technology, prognostic factor or risk factor. There are two study designs:

Prospective: the cohorts are identified at a point in time (such as time of birth, residence at a specific location, exposure to a particular risk factor) and followed forward in time to record health outcomes.

Retrospective: the cohorts are defined at a point of time in the past and information is collected on subsequent outcomes. An 'inception cohort' is a group of patients assembled near the onset of the target disorder (such as at the time of first exposure to a supposed cause) and followed forward in time.

Comparator

Treatment, prognostic indicator or test that is compared with the treatment, indicator or test of interest in a clinical trial.

Confidence interval (CI)

An interval within which the population parameter (the 'true' value) is expected to lie with a given degree of certainty (eg 95%).

Confounding (see also Adjustment)

The distortion of the true effect of treatment (or a risk factor) by other factors that vary between the study and control groups (eg baseline differences in age, sex or lifestyle).

Cost-effectiveness analyses

Process for examining both the costs and health outcomes of one or more interventions. It involves comparing an intervention to another intervention (or usual care) by estimating how much it costs to gain a unit of a health outcome (e.g., year of life, prevent death).

Critical appraisal

Process of assessing how well the methods of a clinical study eliminate bias (and therefore how reliable the results are). Process of (a) assessing how well the methods of a clinical study eliminate bias and therefore how reliable the results are (which is also called 'internal validity'); and (b) interpreting what the results mean.

Cross-sectional study

A study that examines the relationship between specific outcomes and variables of interest in a defined population at a particular time (ie exposure and outcomes are both measured at the same time). For a diagnostic cross-sectional study, a consecutive group of subjects receive both the test under study (index test) and the reference standard test.

Diagnostic case-control study (see also Case–control study)

A study in which the index test results for a group of patients already known to have the disease (through the reference standard) are compared to the index test results for a separate group of normal/healthy people known to be free of the disease (through the reference standard).

Diagnostic accuracy

A measure of how often a diagnostic test gives the right answer (that is, positive result for people with the condition and negative result for people without it).

Evidence-based practice (also called evidence-based medicine)

Patient care in which clinical expertise and patient values are integrated with the best research evidence from the medical literature.

Experimental studies

Studies in which subjects are allocated to two or more groups to receive an intervention, exposure or test and then followed up under carefully controlled conditions.

External validity (see also Applicability, Validity)

The degree to which the results of a clinical study can be applied to clinical practice in a specific setting.

Hazard ratio (HR)

The ratio of the hazards in the treatment and control groups where the hazard is the probability of having the outcome at time t, given that the outcome has not occurred up to time t.

Heterogeneity

Assumption that variances of samples are significantly different. Significant heterogeneity suggests that the trials are not estimating a single common treatment effect.

Homogeneity

Assumption that variances of samples are not significantly different.

Index test (see also Reference test)

In a diagnostic study, the index test is the test for which the diagnostic accuracy is being measured.

Intention to treat

Analysis of clinical trial participants according to the group to which they were initially allocated, regardless of whether or not they dropped out, fully complied with the treatment, or crossed over to the other treatment.

Interrupted time series (see Time series)

Intervention

A therapeutic procedure, such as treatment with a pharmaceutical agent, surgery, a dietary supplement, a dietary change, psychotherapy, early detection (screening) or use of patient educational materials.

Level of evidence

A hierarchy of study designs according to their internal validity, or degree to which they are not susceptible to bias.

Meta-analysis

Results from several studies, identified in a systematic review, are combined and summarised quantitatively.

Non-parametric statistics

Statistical procedures not based on assumptions of population parameters i.e. distribution.

Null hypothesis

Presumption that the results observed in a study (eg the apparent beneficial effects of an intervention) were due to chance.

Number needed to treat (NNT)

The number of patients with a particular condition who must receive a treatment in order to prevent the occurrence of one adverse outcome. NNT is the inverse of the absolute risk reduction. Similarly, 'number needed to harm' (NNH) refers to harmful outcomes.

Odds ratio (OR)

Ratio of the odds (those with the outcome divided by those without it) in the treatment group to the corresponding odds in the control group. An odds ratio of 1 implies that the outcome is equally likely in both groups.

Outcome measure

Method or measuring tool used to assess the variable of interest.

Per protocol analysis

Analysis of clinical trial participants according to the group/intervention they received regardless of which group they were initially allocated.

PICO Question

Focused clinical question that serves as a point of reference for literature searches

Patient/population group of interest; **I**ntervention; **C**omparator; **O**utcome;

May also include: **S**etting; **s**tudy design; **T**ime

Population

Entire set of individuals or units

Power calculation

A calculation used to determine the sample size needed in order to be able to detect a clinically important difference between two groups. This should be undertaken before a study commences and reported in the methods section of the article.

Prognostic indicator

A factor (such as age, gender, risk factor) that is related to a person's probability of developing the disease or outcome.

Pseudorandomised controlled study

An experimental comparison study in which subjects are allocated to treatment/intervention or control/placebo groups in a non-random way (such as alternate allocation, allocation by day of week, odd–even study numbers, etc).

Random error

The portion of variation in a measurement that is due to chance.

Randomised controlled trial

An experimental comparison study in which participants are allocated to treatment/intervention or control/placebo groups using a random mechanism (such as coin toss, random number table or computer-generated random numbers). Participants have an equal chance of being allocated to an intervention or control group and therefore allocation bias is eliminated.

Reference test (see also Index test)

A method, procedure or measurement that is widely regarded or accepted as being the best available (also known as a 'gold standard'). Often used to compare with a new method (index test).

Relative risk or risk ratio (RR)

Ratio of the rates of outcome in the treatment and control groups. This expresses the risk of the outcome in the treatment group relative to that in the control group.

Relative risk reduction (RRR)

The relative reduction in risk associated with an intervention or exposure. It is calculated as one minus the relative risk.

Reliability

The extent to which a scale produces consistent results if measurements are repeated.

Risk of bias

The likelihood that features of the study design will give misleading results. Risk of bias assessment tools assess the risk of bias being present in randomised controlled trials.

Selection bias

Error due to systematic differences in characteristics between those who are selected for study and those who are not. It invalidates conclusions and generalisations that might otherwise be drawn from such studies.

Statistical significance

The likelihood of a relationship between variables being due to something other than chance.

Systematic review

The process of systematically locating, appraising and synthesising evidence from scientific studies in order to obtain a reliable overview.

Time series

A set of measurements taken over time. An interrupted time series is generated when a set of measurements is taken before the introduction of an intervention (or some other change in the system), followed by another set of measurements taken over time after the change.

Validity

Of a study: the degree to which the inferences drawn from the study are warranted when account is taken of the study methods, the representativeness of the study sample, and the nature of the population from which it is drawn (internal and external validity, applicability, generalisability).

Of an outcome measure: the extent the instrument measures what was designed to measure.

Variable

A characteristic that can be measured or counted.

Independent/experimental/predictor variable: the variable being manipulated in an experiment to observe the effect on the dependent variable

Dependent/outcome variable: variable dependent on the independent variable

References

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