A

Abstract

Related to: Research publications.

Definition: Overview of an article that briefly provides the main elements of a study.

Application: Used by a reader to consider the relevance of a study for a particular purpose or as a part of browsing an article to get an understanding of its content before either reading in detail or rejecting it.

Key revision points: Useful way of checking type of study, aim, results and recommendations of a study before reading through the full article itself. Look in particular at the aim, outcome measure, the intervention (if quantitative research) and conclusion to get a quick insight into the study. Consider how the study may contribute to your developing knowledge on its topic.

See also: Critique, aim, quantitative research.

Accidental sampling (See: Convenience sampling, sampling methods)

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Rapid Research Methods for Nurses, Midwives and Health Professionals,
First Edition. Colin Rees.
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Action research

Related to: Research Design.

Definition: A research design involving the introduction of change and its evaluation. It is usually the result of collaboration between researchers and practitioners. Such studies consist of the design and analysis of service change followed by the repetition of these steps until a suitable solution or improvement has been achieved.

Application: It provides a quick method to change the delivery of services in a controlled and evaluated way. Although many examples are available, it is still not a commonly used within healthcare.

Key revision points: This method differs from the usual researcher-led design in healthcare. It requires close agreement and working harmony between the researchers and practitioners to identify the nature of a service or organisational problem and its possible solution. Both parties must then work together on its implementation and evaluation. The advantage of action research is its immediacy, as planned change is introduced not as a recommendation but as the focus of the study. There are usually a number of stages to such studies where the cycle of plan–implement–evaluate–repeat leads to slight changes or adjustments until it is agreed that a successful solution to the original problem has been reached. The method of evaluation will use carefully designed research methods (tools) and analysis.

There are some arguments about whether action research is a true research method as there are limitations on the extent to which knowledge gained in such a study can be generalised. However, examples of its beneficial use can be found in the nursing and midwifery literature.

See also: Research design.

Aim (also called objective or purpose)

Related to: The research process, the research question.

Definition: A statement of the purpose of the study that gives the study design direction, as data are collected to answer the aim.

Application: The researcher develops the aim at the start of the planning process. In research articles, it can be found in the abstract and in the main body, usually at the end of the literature review or introduction, and immediately before the section 'methods'. It often starts with the words 'the aim of this study was to determine/examine/explore, etc.'.

Key revision points: Once the aim of a study is written, it will shape other aspects of the design as the wording and content will make many of the stages of a study follow prescribed ways to answer the question to be answered. For example, aims that set out to compare outcomes will usually take the form of a randomised controlled trial (RCT); aims that seek to explore something are generally qualitative studies. In experimental designs, there can be a hypothesis related to the aim that the research sets out to test (the word 'prove' is not used as this is very difficult to establish). When critiquing a study, locate the aim then jump to the conclusion to check if the researcher has clearly answered it. The conclusion should include wordings similar to the aim; if it does not, you may not have found the true conclusion.

See also: Hypothesis, Type III Error.

Analysis of Variance (ANOVA)

Related to: Experimental designs, randomised control trials, hypotheses, statistical analysis.

Definition: In experimental research, a statistical method of testing a hypothesis to assess the existence of a difference between three or more groups in relation to a specific outcome measure (dependent variable). The mean (average) scores or measures between groups are used in the calculation. ANOVA can also be used in non-experimental studies, such as surveys, to test the effect of a number of variables on an outcome measure.

Application: In clinical RCTs, participants can be allocated to three or more groups, each one receiving a different intervention. ANOVA is used to measure the differences found in the groups in relation to the outcome measure so that the more successful interventions can be identified. In descriptive studies, the researcher is sometimes interested in the influence of a number of factors or measures that are not introduced by a researcher but part of the experience or characteristic of those in the sample that can be clustered into groups and its influence on an outcome measured. Characteristics can include age group, or gender, length of treatment or intensity or strength of treatment and an outcome measure such as level of reported pain, hours of sleep per night, or level of anxiety. ANOVA will identify which variables seem to be linked to the outcome measure.

Key revision points: 'ANOVA' is created by combining letters from the phrase ***AN***alysis ***O***f ***VA***riance. It demonstrates the rigour of the researcher in applying statistical processes to compare the means (average results) between groups in an experimental study and a number of variations that might influence any differences discovered between them. It has a long and popular history and is highly regarded as a way of establishing whether a hypothesis should be accepted or rejected, or in non-experimental studies, to identify which factors or attributes appear to have an effect on outcomes. In assignment work, it may be sufficient to recognise the use of this technique as a clear indication that it is a well-conducted study where the data have been processed correctly and the researchers have supported their conclusions.

See also: Analysis of covariance, hypotheses, randomised control trials, inferential statistics.

Analysis of Covariance (ANCOVA)

Related to: Experimental designs, especially randomised control trials, hypotheses, statistical analysis.

Definition: Statistical tests used in a similar way to ANOVA (see the previous entry) but take into account the effect of one or more variables not controlled in an RCT design that may affect outcome measures between groups.

Application: Goes one step further than the ANOVA, by taking account of factors outside the control of the researcher that might influence the results, which is why it is called the '*analysis of covariance*'.

Key revision points: It is similarly an indicator of the rigour of the researcher in searching for statistical relationships in the data that will help to explain the results in an experimental design study.

See also: ANOVA, hypotheses, randomised control trials, inferential statistics.

Anonymity

Related to: Research ethics.

Definition: The protection of the identity of an individual or setting in a study by not revealing a name, characteristic, location or any other feature that would provide clues as to the source of the data and the individual people involved.

Application: Researchers are under an ethical obligation to design and carry out their work so that it is not possible to identify individuals or locations involved in data collection. This is part of the attempt to do no harm (non-maleficence) to those in a study. Individuals could be put at a disadvantage if personal details about them were known to others. This is the same issue as that related to confidentiality in clinical practice.

Key revision points: Researchers should indicate that they have followed the principle of anonymity in published work. Health premises used as the site for studies should be given a general description such as 'a large city hospital', 'the local clinical area' to prevent an educated guess as to participants. Individuals may be given a number, for example, 'Respondent 1 or (R1)', or a pseudonym, for example, 'Molly'. Protecting the identity of individuals is a key aspect in ethical rigour of studies. It may also help individuals to feel that they can be more honest and open in providing information in a study and so increase the level of validity in the study.

See also: Ethics, rigour.

Audit

Definition: The systematic collection of clinical or performance data to compare with standards, targets or baseline measures.

Application: Audit is commonly used in many clinical and organisational settings to monitor the quality of care against targets or standards. The methods it uses to collect data include the use of records, questionnaires, interviews and observation.

Key revision points: Audit is not regarded as a research activity, although it frequently looks like it, and is sometimes presented as if it were research. However, although the findings may be interesting, it only produces information relevant to the location in which it was carried out; it does not produce transferable knowledge about a topic in the same way that research adds to our general knowledge and understanding. Nevertheless, it should be carried out with the same rigour as research using a reasonable sample size and reliable tools of data collection. Emphasise your knowledge that there is a difference between audit and research when referring to it in written work or conversation.

See also: Generalisability, research, principles of research.

Audit trail

Related to: Qualitative research, data analysis.

Definition: In the presentation of qualitative research study, the inclusion of details on the method of analysis that allows a reader to trace how the researcher went from in-depth interviews to the theme headings used to present the data. This provides transparency in the process followed.

Application: In the 'methods' section of published research, and often also in the findings, the qualitative researcher should make it clear how they followed a standardised and systematic process in analysing the volume of verbal, observational or written material they have gathered. The audit trail is the visible path outlined by the researcher showing how they have clustered and condensed the data into meaningful 'units of text' and eventually theme headings. Authors can describe the process in the text, or it may be shown visually in boxes or figures.

Key revision points: This is different from the concept of audit included in the previous entry. Here, the audit trail is a key aspect to include when critiquing qualitative research. Its presence is a way of reassuring the reader that analytical rigour has been applied in the study. Just as in financial auditing, in qualitative research, the author must be persuasive and transparent in the way in which they have processed and analysed their data if the findings are to be trusted.

See also: Qualitative research.