

GLOSSARY

- absolute risk** The proportion of people in a group who experienced an undesirable outcome.
- absolute risk reduction (ARR)** The difference between the absolute risk in one group (e.g., those exposed to an intervention) and the absolute risk in another group (e.g., those not exposed); sometimes called the *risk difference* or *RD*.
- abstract** A brief description of a completed or proposed study, usually located at the beginning of a report or proposal.
- accessible population** The population of people available for a particular study; often a nonrandom subset of the target population.
- accidental sampling** Selection of the most readily available people as study participants; also called *convenience sampling*.
- acquiescence response set** A bias in self-report instruments, especially in psychosocial scales, created when participants characteristically agree with statements (“yea-say”) independent of content.
- adherence to treatment** The degree to which those in an intervention group adhere to protocols or continue getting the treatment.
- adjusted mean** The mean group value for the dependent variable, after statistically removing the effect of covariates.
- after-only design** An experimental design in which data are collected from subjects only after an intervention has been introduced.
- allocation concealment** The process used to ensure that those enrolling subjects into a clinical trial are unaware of upcoming assignments, that is, the treatment group to which new enrollees will be assigned.
- alpha (α)** (1) In tests of statistical significance, the level indicating the probability of a Type I error; (2) in assessments of internal consistency reliability, a reliability coefficient, Cronbach’s alpha.
- alternative hypothesis** In hypothesis testing, a hypothesis different from the one being tested—usually, different from the null hypothesis.
- analysis** The process of organizing and synthesizing data so as to answer research questions and test hypotheses.
- analysis of covariance (ANCOVA)** A statistical procedure used to test mean differences among groups on a dependent variable, while controlling for one or more covariates.
- analysis of variance (ANOVA)** A statistical procedure for testing mean differences among three or more groups by comparing variability between groups to variability within groups.
- analysis triangulation** The use of two or more analytic techniques to analyze the same set of data.

ancestry approach In literature searches, using citations from relevant studies to track down earlier research upon which the studies are based (the “ancestors”).

anonymity Protection of participants’ confidentiality such that even the researcher cannot link individuals with information provided.

applied research Research designed to find a solution to an immediate practical problem.

arm A group of participants allocated a particular treatment (e.g., the control *arm* or treatment *arm*).

assent The affirmative agreement of a vulnerable subject (e.g., a child) to participate in a study.

associative relationship An association between two variables that cannot be described as causal (i.e., one variable *causing* the other).

assumption A principle that is accepted as being true based on logic or reason, without proof.

asymmetric distribution A distribution of data values that is skewed, with two halves that are not mirror images of each other.

attention control group A control group that gets a similar amount of attention to those in the intervention group, without the “active ingredients” of the treatment.

attribute variables Preexisting characteristics of study participants, which the researcher simply observes or measures.

attrition The loss of participants over the course of a study, which can create bias by changing the composition of the sample initially drawn.

audio-CASI (computer assisted self-interview) An approach to collecting self-report data in which respondents listen to questions being read over headphones, and respond by entering information directly onto a computer.

audit trail The systematic documentation of material that allows an independent auditor of a qualitative study to draw conclusions about trustworthiness.

authenticity The extent to which qualitative researchers fairly and faithfully show a range of different realities in the analysis and interpretation of their data.

auto-ethnography Ethnographic studies in which researchers study their own culture or group.

axial coding The second level of coding in a grounded theory study using the Strauss and Corbin approach, involving the process of categorizing, recategorizing, and condensing first level codes by connecting a category and its subcategories.

back-translation The translation of a translated text back into the original language, so that a comparison of the original and back-translated versions can be made.

baseline data Data collected prior to an intervention, including pretreatment data measuring the dependent variables.

basic research Research designed to extend the base of knowledge in a discipline for the sake of knowledge production or theory construction, rather than for solving an immediate problem.

basic social process (BSP) The central social process emerging through an analysis of grounded theory data.

before–after design An experimental design in which data are collected from subjects both before and after the introduction of an intervention.

behavioral objective An intended outcome of a program or intervention, stated in terms of the behavior of those at whom the program is aimed.

beneficence A fundamental ethical principle that seeks to maximize benefits for study participants, and prevent harm.

beta (β) (1) In multiple regression, the standardized coefficients indicating the relative weights of the predictor variables in the equation; (2) in statistical testing, the probability of a Type II error.

between-subjects design A research design in which there are separate groups of people being compared (e.g., smokers and nonsmokers).

bias Any influence that distorts the results of a study and undermines validity.

bimodal distribution A distribution of data values with two peaks (high frequencies).

binomial distribution A statistical distribution with known properties describing the number of occurrences of an event in a series of observations; forms the basis for analyzing dichotomous data.

bivariate statistics Statistics derived from analyzing two variables simultaneously to assess the empirical relationship between them.

blind review The review of a manuscript or proposal such that neither the author nor the reviewer is identified to the other party.

blinding The process of preventing those involved in a study (subjects, intervention agents, or data collectors) from having information that could lead to a bias, for example, knowledge of which treatment group a subject is in; also called *masking*.

Bonferroni correction An adjustment made to establish a more conservative alpha level when multiple statistical tests are being run from the same data set; the correction is computed by dividing the desired α by the number of tests—e.g., $.05/3 = .017$.

borrowed theory A theory borrowed from another discipline to guide nursing practice or research.

bracketing In phenomenological inquiries, the process of identifying and holding in abeyance any preconceived beliefs and opinions about the phenomena under study.

bricolage The tendency in qualitative research to derive a complex array of data from a variety of sources, using a variety of methods.

calendar question A question used to obtain retrospective information about the chronology of events and activities in people's lives.

canonical analysis A statistical procedure for examining the relationship between two or more independent variables *and* two or more dependent variables.

carry-over effect The influence that one treatment can have on subsequent treatments.

case-control design A nonexperimental research design involving the comparison of a "case" (i.e., a person with the condition under scrutiny, such as lung cancer) and a matched control (a similar person without the condition).

case study A research method involving a thorough, in-depth analysis of an individual, group, or other social unit.

categorical variable A variable with discrete values (e.g., gender) rather than values along a continuum (e.g., weight).

category system In studies involving observation, the prespecified plan for recording the behaviors and events under observation; in qualitative studies, the system used to sort and organize the data.

causal modeling The development and statistical testing of an explanatory model of hypothesized causal relationships among phenomena.

causal (cause-and-effect) relationship A relationship between two variables such that the presence or absence of one variable (the "cause") determines the presence or absence (or value) of the other (the "effect").

cell (1) The intersection of a row and column in a table with two or more dimensions; (2) in an experimental design, the representation of an experimental condition in a schematic diagram.

census A survey covering an entire population.

central (core) category The main category or pattern of behavior in grounded theory analysis using the Strauss and Corbin approach.

central tendency A statistical index of the "typicalness" of a set of scores, derived from the center of the score distribution; indices of central tendency include the mode, median, and mean.

chi-square test A statistical test used to assess differences in proportions; symbolized as χ^2 .

clinical relevance The degree to which a study addresses a problem of significance to the practice of nursing.

clinical research Research designed to generate knowledge to guide nursing practice.

clinical trial A study designed to assess the safety, efficacy, and effectiveness of a new clinical intervention, sometimes involving several phases (e.g., Phase III is a *randomized clinical trial* using an experimental design).

closed-ended question A question that offers respondents a set of mutually exclusive response options.

cluster analysis A multivariate statistical procedure used to cluster people or things based on patterns of association.

cluster randomization The random assignment of intact groups of subjects—rather than individual subjects—to treatment conditions.

cluster sampling A form of sampling in which large groupings (“clusters”) are selected first (e.g., nursing schools), with successive subsampling of smaller units (e.g., nursing students).

Cochrane Collaboration An international organization that aims to facilitate well-informed decisions about health care by preparing and disseminating systematic reviews of the effects of health care interventions.

code of ethics The fundamental ethical principles established by a discipline or institution to guide researchers’ conduct in research with human (or animal) subjects.

codebook A record documenting categorization and coding decisions.

coding The process of transforming raw data into standardized form for data processing and analysis; in quantitative research, the process of attaching numbers to categories; in qualitative research, the process of identifying recurring words, themes, or concepts within the data.

coefficient alpha (Cronbach’s alpha) A reliability index that estimates the internal consistency or homogeneity of a measure composed of several items or subparts.

coercion In a research context, the explicit or implicit use of threats (or excessive rewards) to gain people’s cooperation in a study.

cognitive questioning A method sometimes used during a pretest of an instrument in which respondents are asked to verbalize what comes to mind when they hear a question.

cognitive test An instrument designed to assess cognitive skills or cognitive functioning (e.g., an IQ test).

Cohen’s *d* An effect size for comparing two group means, computed by subtracting one mean from the other and dividing by the pooled standard deviation; also called *standardized mean difference*.

cohort design A nonexperimental design in which a defined group of people (a cohort) is followed over time to study outcomes for subsets of the cohorts; also called a *prospective design*.

cohort study A kind of trend study that focuses on a specific subpopulation (which is often an age-related subgroup) from which different samples are selected at different points in time (e.g., the cohort of nursing students who graduated between 1970 and 1974).

comparison group A group of subjects whose scores on a dependent variable are used to evaluate the outcomes of the group of primary interest (e.g., nonsmokers as a comparison group for smokers); term used in lieu of control group when the study design is not a true experiment.

component design A study design for a mixed-method study in which qualitative and quantitative aspects are implemented as discrete components of the overall inquiry.

computer-assisted personal interviewing (CAPI) In-person interviewing in which the interviewers read questions from, and enter responses onto, a laptop computer.

computer-assisted telephone interviewing (CATI) Interviewing done over the telephone in which the interviewers read questions from, and enter responses onto, a computer.

concealment A tactic involving the unobtrusive collection of research data without participants' knowledge or consent, used to obtain an accurate view of naturalistic behavior when the known presence of an observer would distort the behavior of interest.

concept An abstraction based on observations of behaviors or characteristics (e.g., stress, pain).

conceptual definition The abstract or theoretical meaning of the concept being studied.

conceptual file A manual method of organizing qualitative data, by creating file folders for each category in the coding scheme, and inserting relevant excerpts from the data.

conceptual map A schematic representation of a theory or conceptual model that graphically represents key concepts and linkages among them.

conceptual model Interrelated concepts or abstractions assembled together in a rational scheme by virtue of their relevance to a common theme; sometimes called *conceptual framework*.

conceptual utilization The use of research findings in a general, conceptual way to broaden one's thinking about an issue, without putting the knowledge to any specific, documentable use.

concurrent validity The degree to which scores on an instrument are correlated with an external criterion, measured at the same time.

confidence interval (CI) The range of values within which a population parameter is estimated to lie, at a specified probability (e.g., 95% CI).

confidence limit The upper (or lower) boundary of a confidence interval.

confidentiality Protection of study participants so that data provided are never publicly divulged.

confirmability A criterion for integrity in a qualitative inquiry, referring to the objectivity or neutrality of the data and interpretations.

confirmatory factor analysis (CFA) A factor analysis designed to confirm a hypothesized measurement model, using maximum likelihood estimation.

confounding variable A variable extraneous to the research question that confounds or potentially obscures the relationship between the independent and dependent variable and that should be controlled.

consent form A written agreement signed by a study participant and a researcher concerning the terms and conditions of voluntary participation in a study.

consistency check A procedure performed in cleaning a set of data to ensure that the data are internally consistent.

CONSORT guidelines Guidelines (Consolidated Standards of Reporting Trials) for reporting information on clinical trials, including a checklist and flow chart for tracking participants through a trial.

constant comparison A procedure often used in a grounded theory analysis wherein newly collected data are compared in an ongoing fashion with data obtained earlier, to refine theoretically relevant categories.

constitutive pattern In hermeneutic analysis, a pattern that expresses the relationships among relational themes and is present in all the interviews or texts.

construct An abstraction or concept that is deliberately invented (constructed) by researchers for a scientific purpose (e.g., health locus of control).

construct validity The validity of inferences from *observed* persons, settings, and interventions in a study to the constructs that these instances might represent; with an instrument, the degree to which it measures the construct under investigation.

consumer An individual who reads, reviews, and critiques research findings and who attempts to use and apply the findings in his or her practice.

contact information Information obtained from study participants in longitudinal studies, to facilitate their relocation at a future date.

contamination The inadvertent, undesirable influence of one treatment condition on another treatment condition.

content analysis The process of organizing and integrating narrative, qualitative information according to emerging themes and concepts.

content validity The degree to which the items in an instrument adequately represent the universe of content for the concept being measured.

content validity index (CVI) An index of the degree to which an instrument is content valid, based on aggregated ratings of a panel of experts; both items (I-CVI) and the overall scale content validity (S-CVI) can be assessed.

contingency table A two-dimensional table in which the frequencies of two categorical variables are cross-tabulated.

continuous variable A variable that can take on an infinite range of values along a specified continuum (e.g., height).

control The process of holding constant extraneous influences on the dependent variable under study.

control group Subjects in an experiment who do not receive the experimental treatment and whose performance provides a baseline against which the effects of the treatment can be measured (see also *comparison group*).

controlled trial A trial that has a control group, with or without randomization.

convenience sampling Selection of the most readily available persons as participants in a study; also called *accidental sampling*.

convergent validity An approach to construct validation that involves assessing the degree to which two methods of measuring a construct are similar (i.e., converge).

core variable (category) In a grounded theory study, the central phenomenon that is used to integrate all categories of the data.

correlation An association or bond between variables, with variation in one variable systematically related to variation in another.

correlation coefficient An index summarizing the degree of relationship between variables, typically ranging from +1.00 (for a perfect positive relationship) through 0.0 (for no relationship) to -1.00 (for a perfect negative relationship).

correlation matrix A two-dimensional display showing the correlation coefficients between all pairs of a set of variables.

correlational research Research that explores the interrelationships among variables of interest without researcher intervention.

cost/benefit analysis An economic analysis in which both costs and outcomes of a program or intervention are expressed in monetary terms, and compared.

cost-effectiveness analysis An economic analysis in which costs of an intervention are measured in monetary terms, but outcomes are expressed in natural units (e.g., the costs per added year of life).

cost-utility analysis An economic analysis that expresses the effects of an intervention as overall health improvement and describes costs for some additional utility gain—usually in relation to gains in quality-adjusted life years (QALY).

counterbalancing The process of systematically varying the order of presentation of stimuli or treatments to control for ordering effects, especially in a repeated measures design.

counterfactual The condition or group used as a basis of comparison in a study, embodying what would have happened *to the same people* exposed to a causal factor if they *simultaneously* were *not* exposed to the causal factor.

covariate A variable that is statistically controlled (held constant) in ANCOVA, typically an extraneous influence on, or a preintervention measure of, the dependent variable.

covert data collection The collection of information in a study without participants' knowledge.

Cramér's V An index describing the magnitude of relationship between nominal-level data, used when the contingency table to which it is applied is larger than 2×2 .

credibility A criterion for evaluating integrity and quality in qualitative studies, referring to confidence in the truth of the data; analogous to internal validity in quantitative research.

criterion variable The criterion against which the effect of an independent variable is tested; sometimes used instead of *dependent variable*.

criterion-related validity The degree to which scores on an instrument are correlated with some external criterion.

critical case sampling A sampling approach used by qualitative researchers involving the purposeful selection of cases that are especially important or illustrative.

critical ethnography An ethnography that focuses on raising consciousness in the group or culture under study in the hope of effecting social change.

critical incident technique A method of obtaining data from study participants by in-depth exploration of specific incidents and behaviors related to the topic under study.

critical region The area in the sampling distribution representing values that are "improbable" if the null hypothesis is true.

critical theory An approach to viewing the world that involves a critique of society, with the goal of envisioning new possibilities and effecting social change.

critically appraised topic (CAT) A quick summary of a clinical question and an appraisal of the best evidence that typically begins with a clinical bottom line (i.e., best-practice recommendation).

critique A critical, balanced appraisal of a research report or proposal.

Cronbach's alpha A widely used reliability index that estimates the internal consistency of a measure composed of several subparts; also called *coefficient alpha*.

crossover design An experimental design in which one group of subjects is exposed to more than one condition or treatment in random order.

cross-sectional design A study design in which data are collected at one point in time; sometimes used to infer change over time when data are collected from different age or developmental groups.

crosstabulation A calculation of frequencies for two variables considered simultaneously—e.g., gender (male/female) crosstabulated with smoking status (smoker/nonsmoker).

cutoff point The score on a screening or diagnostic instrument used to distinguish cases and noncases.

data The pieces of information obtained in a study (singular is *datum*).

data analysis The systematic organization and synthesis of research data and, in quantitative studies, the testing of hypotheses using those data.

data cleaning The preparation of data for analysis by performing checks to ensure that the data are consistent and accurate.

data collection The gathering of information to address a research problem.

data collection protocols The formal procedures researchers develop to guide the collection of data in a standardized fashion.

data entry The process of entering data onto an input medium for computer analysis.

data saturation See *saturation*.

data set The total collection of data on all variables for all study participants.

data transformation A step often undertaken before data analysis, to put the data in a form that can be meaningfully analyzed (e.g., recoding of values).

data triangulation The use of multiple data sources for the purpose of validating conclusions.

debriefing Communication with study participants after participation is complete regarding aspects of the study.

deception The deliberate withholding of information, or the provision of false information, to study participants, usually to reduce potential biases.

deductive reasoning The process of developing specific predictions from general principles (see also *inductive reasoning*).

degrees of freedom (*df*) A statistical concept referring to the number of sample values free to vary (e.g., with a given sample mean, all but one value would be free to vary).

Delphi survey A technique for obtaining judgments from an expert panel about an issue of concern; experts are questioned individually in several rounds, with a summary of the panel's views circulated between rounds, to achieve some consensus.

dependability A criterion for evaluating integrity in qualitative studies, referring to the stability of data over time and over conditions; analogous to reliability in quantitative research.

dependent variable The variable hypothesized to depend on or be caused by another variable (the *independent variable*); the outcome variable of interest.

descendancy approach In literature searches, finding a pivotal early study and searching forward in citation indexes to find more recent studies ("descendants") that cited the key study.

descriptive research Research that has as its main objective the accurate portrayal of the characteristics of persons, situations, or groups, and/or the frequency with which certain phenomena occur.

descriptive statistics Statistics used to describe and summarize data (e.g., means, percentages).

descriptive theory A broad characterization that thoroughly accounts for a single phenomenon.

determinism The belief that phenomena are not haphazard or random, but rather have antecedent causes; an assumption in the positivist paradigm.

deviation score A score computed by subtracting an individual score from the mean of all scores.

dichotomous variable A variable having only two values or categories (e.g., gender).

direct costs Specific project-related costs incurred during a study (e.g., for supplies, salaries of research staff, etc.).

directional hypothesis A hypothesis that makes a specific prediction about the direction of the relationship between two variables.

discourse analysis A qualitative tradition, from the discipline of sociolinguistics, that seeks to understand the rules, mechanisms, and structure of conversations.

discrete variable A variable with a finite number of values between two points.

discriminant function analysis A statistical procedure used to predict group membership or status on a categorical (nominal level) variable on the basis of two or more independent variables.

discriminant validity An approach to construct validation that involves assessing the degree to which a single method of measuring two constructs yields different results (i.e., discriminates the two).

disproportionate sample A sample in which the researcher samples varying proportions of subjects from different population strata to ensure adequate representation from smaller strata.

domain In ethnographic analysis, a unit or broad category of cultural knowledge.

domain sampling model The model used in developing a scale in the classical measurement theory framework, which involves the random sampling of a homogeneous set of items from a hypothetical universe of items relating to the construct

dose-response analysis An analysis to assess whether larger doses of an intervention are associated with greater benefits, usually in a quasi-experimental framework.

double-blind experiment An experiment in which neither the subjects nor those who administer the treatment know who is in the experimental or control group.

dummy variable Dichotomous variables created for use in many multivariate statistical analyses, typically using codes of 0 and 1 (e.g., female = 1, male = 0).

economic analysis An analysis of the relationship between costs and outcomes of alternative health care interventions.

ecological psychology A qualitative tradition that focuses on the environment's influence on human behavior and attempts to identify principles that explain the interdependence of humans and their environmental context.

ecological validity The extent to which study designs and findings have relevance and meaning in a variety of real-world contexts.

effect size A statistical expression of the magnitude of the relationship between two variables, or the magnitude of the difference between groups on an attribute of interest; also used in metasynthesis to characterize the salience of a theme or category.

effectiveness study A clinical trial designed to shed light on effectiveness of an intervention under ordinary conditions, with an intervention already found to be efficacious in an efficacy study.

editing analysis style An approach to the analysis of qualitative data, in which researchers read through texts in search of meaningful segments, and develop a categorization scheme that is used to sort and organize the data.

efficacy study A tightly controlled clinical trial designed to establish the efficacy of an intervention under ideal conditions, using a design that stresses internal validity.

egocentric network analysis An ethnographic method that focuses on the pattern of relationships and networks of individuals; researchers develop lists of a person's network members (called *alters*) and seek to understand the scope and nature of interrelationships and social supports.

eigenvalue In factor analysis, the value equal to the sum of the squared weights for each factor.

electronic database Bibliographic files that can be accessed by computer for the purpose of conducting a literature review.

element The most basic unit of a population for sampling purposes, typically a human being.

eligibility criteria The criteria designating the specific attributes of the target population, by which people are selected for inclusion in a study.

emergent design A design that unfolds in the course of a qualitative study as the researcher makes ongoing design decisions reflecting what has already been learned.

emergent fit A concept in grounded theory that involves comparing new data and new categories with previously existing conceptualizations.

emic perspective An ethnographic term referring to the way members of a culture themselves view their world; the "insider's view."

empirical evidence Evidence rooted in objective reality and gathered using one's senses as the basis for generating knowledge.

endogenous variable In path analysis, a variable whose variation is determined by other variables within the model.

equivalence The degree of similarity between alternate forms of a measuring instrument.

equivalence trial A trial designed to determine whether the outcomes of two or more treatments differ by an amount that is clinically unimportant.

error of measurement The deviation between true scores and obtained scores of a measured characteristic.

error term The mathematic expression (e.g., in a regression analysis) that represents all unknown or immeasurable attributes that can affect the dependent variable.

estimation procedures Statistical procedures that estimate population parameters based on sample statistics.

eta squared In ANOVA, a statistic calculated to indicate the proportion of variance in the dependent variable explained by the independent variables, analogous to R^2 in multiple regression.

ethics A system of moral values that is concerned with the degree to which research procedures adhere to professional, legal, and social obligations to the study participants.

ethnography A branch of human inquiry, associated with anthropology, that focuses on the culture of a group of people, with an effort to understand the world view of those under study.

ethnomethodology A branch of human inquiry, associated with sociology, that focuses on the way in which people make sense of their everyday activities and come to behave in socially acceptable ways.

ethnonursing research The study of human cultures, with a focus on a group's beliefs and practices relating to nursing care and related health behaviors.

etic perspective An ethnographic term referring to the "outsider's" view of the experiences of a cultural group.

evaluation research Research that investigates how well a program, practice, or policy is working.

event history calendar A data collection matrix that plots time on one dimension and events or activities of interest on the other.

event sampling A sampling plan that involves the selection of integral behaviors or events to be observed.

evidence-based practice A practice that involves making clinical decisions on the best available evidence, with an emphasis on evidence from disciplined research.

evidence hierarchy A ranked arrangement of the validity and dependability of evidence based on the rigor of the method that produced it.

exclusion criteria The criteria that specify characteristics that a population does *not* have.

exogenous variable In path analysis, a variable whose determinants lie outside the model.

experiment A study in which the researcher controls (manipulates) the independent variable and randomly assigns subjects to different conditions.

experimental group The subjects who receive the experimental treatment or intervention.

exploratory factor analysis (EFA) A factor analysis undertaken to explore the underlying dimensionality of a set of variables.

exploratory research A study that explores the dimensions of a phenomenon or that develops or refines hypotheses about relationships between phenomena.

ex post facto research Nonexperimental research conducted after variations in the independent variable have occurred in the natural course of events and therefore any causal explanations are inferred “after the fact.”

external criticism In historical research, the systematic evaluation of the authenticity and genuineness of data.

external validity The degree to which study results can be generalized to settings or samples other than the one studied.

extraneous variable A variable that confounds the relationship between the independent and dependent variables and that needs to be controlled either in the research design or through statistical procedures.

extreme case sampling A sampling approach used by qualitative researchers that involves the purposeful selection of the most extreme or unusual cases.

extreme response set A bias in psychosocial scales created when participants select extreme response alternatives (e.g., “strongly agree”), independent of the item’s content.

F-ratio The statistic obtained in several statistical tests (e.g., ANOVA) in which variation attributable to different sources (e.g., between groups and within groups) is compared.

face validity The extent to which a measuring instrument looks as though it is measuring what it purports to measure.

factor analysis A statistical procedure for reducing a large set of variables into a smaller set of variables with common underlying dimensions.

factor extraction The first phase of a factor analysis, which involves the extraction of as much variance as possible through the successive creation of linear combinations of the variables in the data set.

factor score A person’s score on a latent variable (factor).

factor loading In factor analysis, the weight associated with a variable on a given factor.

factor rotation The second phase of factor analysis, during which the reference axes for the factors are moved to more clearly align variables with a single factor.

factorial design An experimental design in which two or more independent variables are simultaneously manipulated, permitting a separate analysis of the main effects of the independent variables and their interaction.

fail-safe number In meta-analysis, an estimate of the number of studies with nonsignificant results that would be needed to reverse the conclusion of a significant effect.

feasibility study A small-scale test to determine the feasibility of a larger study (*see also* pilot study).

feminist research Research that seeks to understand, typically through qualitative approaches, how gender and a gendered social order shape women's lives and their consciousness.

field diary A daily record of events and conversations in the field; also called a log.

field notes The notes taken by researchers to record the unstructured observations made in the field, and the interpretation of those observations.

field research Research in which the data are collected "in the field" from individuals in their normal roles, with the aim of understanding the practices, behaviors, and beliefs of individuals or groups as they normally function in real life.

fieldwork The activities undertaken by qualitative researchers to collect data out in the field, that is, in natural settings.

findings The results of the analysis of research data.

Fisher's exact test A statistical procedure used to test the significance of the difference in proportions, used when the sample size is small or cells in the contingency table have no observations.

fit In grounded theory analysis, the process of identifying characteristics of one piece of data and comparing them with the characteristics of another datum to determine similarity.

fittingness The degree of congruence between a research sample in a qualitative study and another group or setting of interest.

fixed alternative question A question that offers respondents a set of prespecified response options.

fixed effects model In meta-analysis, a model in which studies are assumed to be measuring the same overall effect; a pooled effect estimate is calculated under the assumption that observed variation between studies is attributable to chance.

focus group interview An interview with a group of individuals assembled to answer questions on a given topic.

focused interview A loosely structured interview in which an interviewer guides the respondent through a set of questions using a topic guide.

follow-up study A study undertaken to determine the outcomes of individuals with a specified condition or who have received a specified treatment.

forced-choice question A question requiring respondents to choose between two statements that represent polar positions.

forest plot A graphic representation of effects across studies in a meta-analysis, permitting an assessment of heterogeneity.

formal grounded theory A theory developed at a more abstract level of theory by integrating several substantive grounded theories.

formative evaluation An ongoing assessment of a product or program as it is being developed, to optimize its quality and effectiveness.

framework The conceptual underpinnings of a study—for example, a *theoretical framework* in theory-based studies, or *conceptual framework* in studies based on a specific conceptual model.

frequency distribution A systematic array of numeric values from the lowest to the highest, together with a count of the number of times each value was obtained.

frequency effect size In a metasynthesis, the percentage of reports that contain a given thematic finding.

frequency polygon Graphic display of a frequency distribution, in which dots connected by a straight line indicate the number of times score values occur in a data set.

Friedman test A nonparametric analog of ANOVA, used with paired-groups or repeated measures situations.

full disclosure The communication of complete, accurate information to potential study participants.

functional relationship A relationship between two variables in which it cannot be assumed that one variable caused the other.

funnel plot A graphical display of some measure of study precision (e.g., sample size) plotted against effect size that can be used to explore relationships that might reflect publication bias.

gaining entrée The process of gaining access to study participants through the cooperation of key actors in the selected community or site.

generalizability The degree to which the research methods justify the inference that the findings are true for a broader group than study participants; in particular, the inference that the findings can be generalized from the sample to the population.

“going native” A pitfall in ethnographic research wherein a researcher becomes too emotionally involved with participants and therefore loses the ability to observe objectively.

grand theory A broad theory aimed at describing large segments of the physical, social, or behavioral world; also called a *macrotheory*.

grand tour question A broad question asked in an unstructured interview to gain a general overview of a phenomenon, on the basis of which more focused questions are subsequently asked.

grant A financial award made to a researcher to conduct a proposed study.

grantsmanship The combined set of skills and knowledge needed to secure financial support for a research idea.

graphic rating scale A scale in which respondents are asked to rate a concept along an ordered bipolar continuum (e.g., “excellent” to “very poor”).

grey literature Unpublished, and thus less readily accessible, research reports.

grounded theory An approach to collecting and analyzing qualitative data that aims to develop theories grounded in real-world observations.

hand searching The planned searching of a journal page by page (i.e. by hand), to identify all relevant reports that might be missed by electronic searching.

Hawthorne effect The effect on the dependent variable resulting from subjects’ awareness that they are participants under study.

hermeneutic circle In hermeneutics, the qualitative circle signifying a methodologic process in which, to reach understanding, there is continual movement between the parts and the whole of the text that are being analyzed.

hermeneutics A qualitative research tradition, drawing on interpretive phenomenology, that focuses on the lived experiences of humans, and on how they interpret those experiences.

heterogeneity The degree to which objects are dissimilar (i.e., characterized by variability) on some attribute.

hierarchical multiple regression A multiple regression analysis in which predictor variables are entered into the equation in steps that are prespecified by the analyst.

histogram A graphic presentation of frequency distribution data.

historical research Systematic studies designed to discover facts and relationships about past events.

history threat The occurrence of events external to an intervention but concurrent with it, which can affect the dependent variable and threaten the study’s internal validity.

homogeneity (1) In terms of the reliability of an instrument, the degree to which its subparts are internally consistent (i.e., are measuring the same critical attribute). (2) More generally, the degree to which objects are similar (i.e., characterized by low variability).

homogenous sampling A sampling approach used by qualitative researchers involving the deliberate selection of cases with limited variation.

hypothesis A statement of predicted relationships between variables.

identical (literal) replication An exact duplication of the original methods used in a prior study to determine if similar results are obtained.

impact analysis An evaluation of the effects of a program or intervention on outcomes of interest, net of other factors influencing those outcomes.

impact factor An annual measure of citation frequency for an average article in a given journal, that is, the ratio between citations and recent citable items published in the journal.

implementation analysis In evaluations, a description of the process by which a program or intervention was implemented in practice.

implementation potential The extent to which an innovation is amenable to implementation in a new setting, an assessment of which is usually made in an evidence-based practice project.

implied consent Consent to participate in a study that a researcher assumes has been given based on participants' actions, such as returning a completed questionnaire.

IMRAD format The organization of a research report into four sections: the Introduction, Method, Research, and Discussion sections.

incidence rate The rate of new cases with a specified condition, determined by dividing the number of new cases over a given period of time by the number at risk of becoming a new case (i.e. free of the condition at the outset of the time period).

independent variable The variable that is believed to cause or influence the dependent variable; in experimental research, the manipulated (treatment) variable.

indirect costs Administrative costs, over and above the specific (direct) costs of conducting the study; also called *overhead*.

inductive reasoning The process of reasoning from specific observations to more general rules (see also *deductive reasoning*).

inferential statistics Statistics that permit inferences on whether results observed in a sample are likely to occur in the larger population.

informant An individual who provides information to researchers about a phenomenon under study, usually in qualitative studies.

informed consent An ethical principle that requires researchers to obtain the voluntary participation of subjects, after informing them of possible risks and benefits.

inquiry audit An independent scrutiny of qualitative data and relevant supporting documents by an external reviewer, to determine the dependability and confirmability of qualitative data.

insider research Research on a group or culture—usually in an ethnography—by a member of the group or culture.

Institutional Review Board (IRB) A group of individuals from an institution who convene to review proposed and ongoing studies with respect to ethical considerations.

instrument The device used to collect data (e.g., a questionnaire, test, observation schedule, etc.).

instrumental utilization Clearly identifiable attempts to base some specific action or intervention on the results of research findings.

instrumentation threat The threat to the internal validity of the study that can arise if the researcher changes the measuring instrument between two points of data collection.

integrated design A mixed method design in which there is integration of the method types during all phases of the project.

intensity effect size In a metasynthesis, the percentage of all thematic findings that are contained in any given report.

intensity sampling A sampling approach used by qualitative researchers involving the purposeful selection of intense (but not extreme) cases.

intention to treat A strategy for analyzing data in an intervention study that includes participants with the group to which they were assigned, whether or not they received or completed the treatment associated with the group.

interaction effect The effect of two or more independent variables acting in combination (interactively) on a dependent variable.

intercoder reliability The degree to which two coders, operating independently, agree on coding decisions.

internal consistency The degree to which the subparts of an instrument are all measuring the same attribute or dimension, as a measure of the instrument's reliability.

internal criticism In historical research, an evaluation of the worth of the historical evidence.

internal validity The degree to which it can be inferred that the experimental treatment (independent variable), rather than uncontrolled, extraneous factors, is responsible for observed effects.

interpretation The process of making sense of the results of a study and examining their implications.

interrater (interobserver) reliability The degree to which two raters or observers, operating independently, assign the same ratings or values for an attribute being measured or observed.

interrupted time series design. *See* time series design.

interval estimation A statistical estimation approach in which the researcher establishes a range of values that are likely, within a given level of confidence, to contain the true population parameter.

interval measurement A measurement level in which an attribute of a variable is rank ordered on a scale that has equal distances between points on that scale (e.g., Fahrenheit degrees).

intervention In experimental research, the experimental treatment or manipulation.

intervention fidelity The extent to which the implementation of a treatment is faithful to its plan.

intervention protocol The specification of exactly what an intervention and alternative treatment conditions will be, and how they are to be administered.

intervention research Research involving the development, implementation, and testing of an intervention.

intervention theory The conceptual underpinning of a health care intervention, which articulates the theoretical basis for what must be done to achieve desired outcomes.

interview A data collection method in which an interviewer asks questions of a respondent, either face-to-face or by telephone.

interview schedule The formal instrument that specifies the wording of all questions to be asked of respondents in structured self-report studies.

intuiting The second step in descriptive phenomenology, which occurs when researchers remain open to the meaning attributed to the phenomenon by those who experienced it.

inverse relationship A relationship characterized by the tendency of high values on one variable to be associated with low values on the second variable; also called a *negative relationship*.

inverse variance method In meta-analysis, a method that uses the inverse of the variance of the effect estimate (one divided by the square of its standard error) as the weight to calculate a weighted average of effects.

investigator triangulation The use of two or more researchers to analyze and interpret a data set, to enhance validity.

isomorphism In measurement, the correspondence between the measures an instrument yields and reality.

item A single question on an instrument, or a single statement on a scale.

item analysis A type of analysis used to assess whether items on a scale are tapping the same construct and are sufficiently discriminating.

joint interview An interview where two or more people are interviewed simultaneously, typically using either a semistructured or unstructured interview.

jottings Short notes jotted down quickly in the field so as to not distract researchers from their observations or their role as participating members of a group.

journal article A report appearing in professional journals such as *Nursing Research*.

journal club A group that meets regularly in clinical settings to discuss and critique research reports appearing in journals.

judgmental sampling A type of nonprobability sampling method in which the researcher selects study participants based on personal judgment about who will be most representative or informative; also called *purposive sampling*.

kappa An index used to measure interrater agreement, which summarizes the extent of agreement beyond the level expected to occur by chance.

Kendall's tau A correlation coefficient used to indicate the magnitude of a relationship between ordinal-level variables.

key informant A person well-versed in the phenomenon of research interest and who is willing to share the information and insight with the researcher (often an ethnographer).

keyword An important term used to search for references on a topic in a bibliographic database.

known-groups technique A technique for estimating the construct validity of an instrument through an analysis of the degree to which the instrument separates groups predicted to differ based on known characteristics or theory.

Kruskal-Wallis test A nonparametric test used to test the difference between three or more independent groups, based on ranked scores.

latent trait scale A scale developed within an *item response theory* framework, an alternative psychometric theory to *classical measurement theory*.

latent variable An unmeasured variable that represents an underlying, abstract construct (usually in the context of a structural equations analysis).

law A theory that has accrued such persuasive empirical support that it is accepted as true (e.g., Boyle's law of gases).

least-squares estimation A method of statistical estimation in which the solution minimizes the sums of squares of error terms; also called OLS (ordinary least squares).

level of measurement A system of classifying measurements according to the nature of the measurement and the type of permissible mathematical operations; the levels are nominal, ordinal, interval, and ratio.

level of significance The risk of making a Type I error in a statistical analysis, established by the researcher beforehand (e.g., the .05 level).

life history A narrative self-report about a person's life experiences vis-à-vis a theme of interest.

life table analysis A statistical procedure used when the dependent variable represents a time interval between an initial event (e.g., onset of a disease) and an end event (e.g., death); also called *survival analysis*.

likelihood ratio (LR) For a screening or diagnostic instrument, the relative likelihood that a given result is expected in a person with (as opposed to one without) the target attribute; LR indexes summarize the relationship between specificity and sensitivity in a single number.

Likert scale A composite measure of attitudes involving the summation of scores on a set of items that respondents rate for their degree of agreement or disagreement.

linear regression An analysis for predicting the value of a dependent variable from one or more predictors by determining a straight-line fit to the data that minimizes deviations from the line.

LISREL An acronym for linear structural relation analysis, used for testing causal models.

listwise deletion A method of dealing with missing values in a data set that involves the elimination of cases with missing data.

literature review A critical summary of research on a topic of interest, often prepared to put a research problem in context.

log In participant observation studies, the observer's daily record of events and conversations.

logical positivism The philosophy underlying the traditional scientific approach; see also *positivist paradigm*.

logistic regression A multivariate regression procedure that analyzes relationships between one or more independent variables and categorical dependent variables; also called *logit analysis*.

logit The natural log of the odds, used as the dependent variable in logistic regression; short for logistic probability unit.

longitudinal study A study designed to collect data at more than one point in time, in contrast to a cross-sectional study.

macrotheory A broad theory aimed at describing large segments of the physical, social, or behavioral world; also called a *grand theory*.

main effects In a study with multiple independent variables, the effects of a single independent variable on the dependent variable.

manifest variable An observed, measured variable that serves as an indicator of an underlying construct, that is, a latent variable.

manipulation An intervention or treatment introduced by the researcher in an experimental or quasi-experimental study to assess its impact on the dependent variable.

manipulation check In experimental studies, a test to determine whether the manipulation was implemented as intended.

Mann-Whitney *U* test A nonparametric statistic used to test the difference between two independent groups, based on ranked scores.

MANOVA See *multivariate analysis of variance*.

marginals The distribution of grouped data in a crosstabulation, so called because they are found in the margins of a computer printout.

masking See *Blinding*

matching The pairing of subjects in one group with those in another group based on their similarity on one or more dimension, to enhance the overall comparability of groups.

maturation threat A threat to the internal validity of a study that results when changes to the outcome measure (dependent variable) result from the passage of time.

maximum likelihood estimation An estimation approach in which the estimators are ones that estimate the parameters most likely to have generated the observed measurements.

maximum variation sampling A sampling approach used by qualitative researchers involving the purposeful selection of cases with a wide range of variation.

McNemar test A statistical test for comparing differences in proportions when values are derived from paired (nonindependent) groups.

mean A measure of central tendency, computed by summing all scores and dividing by the number of subjects.

measurement The assignment of numbers to objects according to specified rules to characterize quantities of some attribute.

measurement model In structural equations modeling, the model that stipulates the hypothesized relationships among the manifest and latent variables.

median A descriptive statistic that is a measure of central tendency, representing the exact middle value in a score distribution; the value above and below which 50 percent of the scores lie.

median test A nonparametric statistical test involving the comparison of median values of two independent groups to determine if the groups are from populations with different medians.

mediating variable A variable that mediates or acts like a “go-between” in a causal chain linking two other variables.

member check A method of validating the credibility of qualitative data through debriefings and discussions with informants.

meta-analysis A technique for quantitatively integrating the results of multiple similar studies addressing the same research question.

metamatrix A device sometimes used in a mixed method study that permits researchers to recognize important patterns and themes across data sources and to develop hypotheses.

meta-regression In meta-analyses, an analytic approach for exploring clinical and methodologic factors contributing to heterogeneity of effects.

meta-summary A process that lays the foundation for a metasynthesis, involving the development of a list of abstracted findings from primary studies and calculating manifest effect sizes (frequency and intensity effect size).

metasynthesis The grand narratives or interpretive translations produced from the integration or comparison of findings from qualitative studies.

methodologic notes In observational field studies, the researcher's notes about the methods used in collecting data.

methodologic research Research designed to develop or refine methods of obtaining, organizing, or analyzing data.

methods (research) The steps, procedures, and strategies for gathering and analyzing data in a study.

method triangulation The use of multiple methods of data collection about the same phenomenon, to enhance validity.

middle-range theory A theory that focuses on only a piece of reality or human experience, involving a selected number of concepts (e.g., a theory of stress).

minimal risk Anticipated risks that are no greater than those ordinarily encountered in daily life or during the performance of routine tests or procedures.

missing values Values missing from a data set for some study participants, due, for example, to refusals, errors, or skip patterns.

mixed method research Research in which both qualitative and quantitative data are collected and analyzed.

mixed-mode strategy An approach to collecting survey data beginning with attempts at a telephone interview, followed by in-person interviewing only if necessary.

modality A characteristic of a frequency distribution describing the number of peaks; that is, values with high frequencies.

mode A measure of central tendency; the score value that occurs most frequently in a distribution of scores.

model A symbolic representation of concepts or variables, and interrelationships among them.

moderator variable A variable that affects (moderates) the relationship between the independent and dependant variables.

molar approach A way of making observations about behaviors that entails studying large units of behavior and treating them as a whole.

molecular approach A way of making observations about behavior that uses small and highly specific behaviors as units of observation.

mortality threat A threat to the internal validity of a study, referring to the differential loss of participants (attrition) from different groups.

multicollinearity A problem that can occur in multiple regression when predictor variables are too highly intercorrelated, which can lead to unstable estimates of the regression coefficients.

multimodal distribution A distribution of values with more than one peak (high frequency).

multiple classification analysis A variant of multiple regression and ANCOVA that yields group means on the dependent variable adjusted for the effects of covariates.

multiple comparison procedures Statistical tests, normally applied after an ANOVA indicates statistically significant group differences, that compare different pairs of groups; also called *post hoc tests*.

multiple correlation coefficient An index that summarizes the degree of relationship between two or more independent variables and a dependent variable; symbolized as *R*.

multiple regression analysis A statistical procedure for understanding the effects of two or more independent (predictor) variables on a dependent variable.

multistage sampling A sampling strategy that proceeds through a set of stages from larger to smaller sampling units (e.g., from states, to census tracts, to households).

multitrait–multimethod matrix method A method of assessing an instrument’s construct validity using multiple measures for a set of subjects; the target instrument is valid to the extent that there is a strong relationship between it and other measures of the same attribute (convergence) and a weak relationship between it and measures purporting to measure a different attribute (discriminability).

multivariate analysis of variance (MANOVA) A statistical procedure used to test the significance of differences between the means of two or more groups on two or more dependent variables, considered simultaneously.

multivariate statistics Statistical procedures designed to analyze the relationships among three or more variables (e.g., multiple regression, ANCOVA).

N The symbol designating the total number of subjects (e.g., “the total *N* was 500”).

n The symbol designating the number of subjects in a subgroup or cell of a study (e.g., “each of the four groups had an *n* of 125, for a total *N* of 500”).

narrative analysis A type of qualitative approach that focuses on the story as the object of the inquiry.

natural experiment A nonexperimental study that takes advantage of a naturally occurring event (e.g., an earthquake) that is explored for its effect on people’s behavior or condition, typically by comparing people exposed to the event with those not exposed.

naturalistic paradigm An alternative paradigm to the traditional positivist paradigm that holds that there are multiple interpretations of reality, and that the goal of research is to understand how individuals construct reality within their context; often associated with qualitative research.

naturalistic setting A setting for the collection of research data that is natural to those being studied (e.g., homes, places of work, and so on).

needs assessment A study designed to describe the needs of a group, community, or organization, usually as a guide to policy planning and resource allocation.

negative case analysis The refinement of a theory or description in a qualitative study through the inclusion of cases that appear to disconfirm earlier hypotheses.

negative predictive value (NPV) A measure of the usefulness of a screening/diagnostic test that can be interpreted as the probability that a negative test result is correct; calculated by dividing the number with a negative test who do not have disease by the number with a negative test.

negative relationship A relationship between two variables in which there is a tendency for high values on one variable to be associated with low values on the other (e.g., as stress increases, emotional well-being decreases); also called an *inverse relationship*.

negative results Results that fail to support the researcher's hypotheses.

negatively skewed distribution An asymmetric distribution of data values with a disproportionately high number of cases at the upper end; when displayed graphically, the tail points to the left.

net effect The effect of an independent variable on a dependent variable, after controlling for the effect of one or more covariates through multiple regression or ANCOVA.

network sampling The sampling of participants based on referrals from others already in the sample; also called *snowball sampling*.

nocebo effect Adverse side effect experienced by those receiving a placebo treatment.

nominal measurement The lowest level of measurement involving the assignment of characteristics into categories (e.g., males, category 1; females, category 2).

nominated sampling A sampling method in which researchers ask early informants to make referrals to other potential participants.

nondirectional hypothesis A research hypothesis that does not stipulate the expected direction of the relationship between variables.

nonequivalent control group design A quasi-experimental design involving a comparison group that was not created through random assignment.

nonexperimental research Studies in which the researcher collects data without introducing an intervention; also called *observational research*.

noninferiority trial A trial designed to determine whether the effect of a new treatment is not worse than a standard treatment by more than a pre-specified amount.

nonparametric tests A class of statistical tests that do not involve stringent assumptions about the distribution of critical variables.

nonprobability sampling The selection of sampling units (e.g., participants) from a population using nonrandom procedures (e.g., convenience and quota sampling).

nonrecursive model A causal model that predicts reciprocal effects (i.e., a variable can be both the cause of and an effect of another variable).

nonresponse bias A bias that can result when a nonrandom subset of people invited to participate in a study fail to participate.

nonsignificant result The result of a statistical test indicating that group differences or an observed relationship could have occurred by chance, at a given level of significance; sometimes abbreviated as NS.

normal distribution A theoretical distribution that is bell-shaped and symmetrical; also called a *normal curve* or a *Gaussian distribution*.

norms Test-performance standards, based on test score information from a large, representative sample.

null hypothesis A hypothesis stating no relationship between the variables under study; used primarily in statistical testing as the hypothesis to be rejected.

number needed to treat (NNT) An estimate of how many people would need to receive an intervention to prevent one undesirable outcome, computed by dividing 1 by the value of the absolute risk reduction.

nursing research Systematic inquiry designed to develop knowledge about issues of importance to the nursing profession.

objectivity The extent to which two independent researchers would arrive at similar judgments or conclusions (i.e., judgments not biased by personal values or beliefs).

oblique rotation In factor analysis, a rotation of factors such that the reference axes are allowed to move to acute or oblique angles and hence the factors are allowed to be correlated.

observational notes An observer's in-depth descriptions about events and conversations observed in naturalistic settings.

observational research Studies that do not involve an experimental intervention—that is, nonexperimental research; also, research in which data are collected through direct observation.

observed (obtained) score The actual score or numerical value assigned to a person on a measure.

odds A way of expressing the chance of an event—the probability of an event occurring to the probability that it will not occur, calculated by dividing the number of people who experienced an event by the number for whom it did not occur.

odds ratio (OR) The ratio of one odds to another odds, for example, the ratio of the odds of an event in one group to the odds of an event in another group; an odds ratio of one indicates no difference between groups.

on-protocol analysis A principle for analyzing data that includes data only from those members of a treatment group who actually received the treatment.

one-tailed test A statistical test in which only values in one tail of a distribution are considered in determining significance; sometimes used when the researcher states a directional hypothesis.

open coding The first level of coding in a grounded theory study, referring to the basic descriptive coding of the content of narrative materials.

open-ended question A question in an interview or questionnaire that does not restrict respondents' answers to preestablished alternatives.

operational definition The definition of a concept or variable in terms of the procedures by which it is to be measured.

operationalization The process of translating research concepts into measurable phenomena.

oral history An unstructured self-report technique used to gather personal recollections of events and their perceived causes and consequences.

ordinal measurement A measurement level that rank orders phenomena along some dimension.

ordinary least squares (OLS) regression Regression analysis that uses the least-squares criterion for estimating the parameters in the regression equation.

orthogonal rotation In factor analysis, a rotation of factors such that the reference axes are kept at right angles, and hence the factors remain uncorrelated.

outcome analysis An evaluation of what happens to outcomes of interest after implementing a program or intervention, typically using a one group before–after design.

outcome measure A term sometimes used to refer to the dependent variable, that is, the measure that captures the outcome of an intervention.

outcomes research Research designed to document the effectiveness of health care services and the end results of patient care.

outliers Values that lie outside the normal range of values for other cases in a data set.

p value In statistical testing, the probability that the obtained results are due to chance alone; the probability of a Type I error.

pair matching See *matching*.

pairwise deletion A method of dealing with missing values in a data set involving the deletion of cases with missing data selectively (i.e., on a variable by variable basis).

panel study A longitudinal survey study in which data are collected from the same people (*a panel*) at two or more points in time.

paradigm A way of looking at natural phenomena that encompasses a set of philosophical assumptions and that guides one's approach to inquiry.

paradigm case In a hermeneutic analysis following the precepts of Benner, a strong exemplar of the phenomenon under study, often used early in the analysis to gain understanding of the phenomenon.

parameter A characteristic of a population (e.g., the mean age of all U.S. citizens).

parametric tests A class of statistical tests that involve assumptions about the distribution of the variables and the estimation of a parameter.

participant See *study participant*.

partially randomized patient preference (PRPP) design A design that involves randomizing only patients without a strong preference for a treatment condition.

participant observation A method of collecting data through the participation in and observation of a group or culture.

participatory action research (PAR) A research approach based on the premise that the use and production of knowledge can be political and used to exert power.

path analysis A regression-based procedure for testing causal models, typically using correlational data.

path coefficient The weight representing the impact of one variable on another in a path analytic model.

path diagram A graphic representation of the hypothesized interrelationships and causal flow among variables.

patient-centered intervention (PCI) An intervention tailored to meet individual needs or characteristics.

Pearson's r A correlation coefficient designating the magnitude of relationship between two variables measured on at least an interval scale; also called *the product-moment correlation*.

peer debriefing Sessions with peers to review and explore various aspects of a study, sometimes used to enhance trustworthiness in a qualitative study.

peer reviewer A researcher who reviews and critiques a research report or proposal, and who makes a recommendation about publishing or funding the research.

pentadic dramatism An approach for analyzing of narratives, developed by Burke, that focus on five key elements of a story: act (what was done), scene (when and where it was done), agent (who did it), agency (how it was done), and purpose (why it was done).

perfect relationship A correlation between two variables such that the values of one variable permit perfect prediction of the values of the other; designated as 1.00 or -1.00 .

performance ethnography A scripted, staged reenactment of ethnographically derived notes that reflect an interpretation of the culture.

permuted block randomization Randomization that occurs for blocks of subjects of even size (e.g., 6 or 8 at a time), to ensure that, at any given time, roughly equal numbers of subjects have been allocated to all treatment groups.

persistent observation A qualitative researcher's intense focus on the aspects of a situation that are relevant to the phenomena being studied.

person triangulation The collection of data from different levels of persons, with the aim of validating data through multiple perspectives on the phenomenon.

personal interview A face-to-face interview between an interviewer and a respondent.

personal notes In field studies, written comments about the observer's own feelings during the research process.

phenomenon The abstract concept under study, often used by qualitative researchers in lieu of the term *variable*.

phenomenology A qualitative research tradition, with roots in philosophy and psychology, that focuses on the lived experience of humans.

phi coefficient A statistical index describing the magnitude of relationship between two dichotomous variables.

photo elicitation An interview stimulated and guided by photographic images.

pilot study A small-scale version, or trial run, done in preparation for a major study (the *parent study*).

placebo A sham or pseudo intervention, often used as a control group condition.

placebo effect Changes in the dependant variable attributable to the placebo condition.

point estimation A statistical procedure that uses information from a sample (a statistic) to estimate the single value that best represents the population parameter.

point prevalence rate The number of people with a condition or disease divided by the total number at risk, multiplied by the total number for whom the rate is being established (e.g., per 1000 population).

population The entire set of individuals or objects having some common characteristics (e.g., all RNs in Canada); sometimes called *universe*.

positive predictive value (PPV) A measure of the usefulness of a screening/diagnostic test that can be interpreted as the probability that a positive test result is correct; calculated by dividing the number with a positive test who have disease by the number with a positive test.

positive relationship A relationship between two variables in which high values on one variable tend to be associated with high values on the other (e.g., as physical activity increases, pulse rate increases).

positive results Research results that are consistent with the researcher's hypotheses.

positively skewed distribution An asymmetric distribution of values with a disproportionately high number of cases at the lower end; when displayed graphically, the tail points to the right.

positivist paradigm The paradigm underlying the traditional scientific approach, which assumes that there is a fixed, orderly reality that can be objectively studied; often associated with quantitative research.

post hoc test A test for comparing all possible pairs of groups following a significant test of overall group differences (e.g., in an ANOVA).

poster session A session at a professional conference in which several researchers simultaneously present visual displays summarizing their studies, while conference attendees circulate around the room perusing the displays.

posttest The collection of data after introducing an intervention.

posttest-only design An experimental design in which data are collected from subjects only after the intervention has been introduced; also called an *after-only design*.

power A research design's ability to detect relationships that exist among variables.

power analysis A procedure for estimating either the likelihood of committing a Type II error or sample size requirements.

practical (pragmatic) clinical trial Trials that address practical questions about the benefits, risks, and costs of an intervention as they would unfold in routine clinical practice, using designs formed based on information needed for making clinical decisions.

precision In statistics, the extent to which random errors have been reduced, usually expressed in terms of the width of the confidence interval around an estimate.

prediction The use of empirical evidence to make forecasts about how variables will behave in a new setting and with different individuals.

predictive validity The degree to which an instrument can predict a criterion observed at a future time.

pretest (1) The collection of data prior to the experimental intervention; sometimes called baseline data; (2) The trial administration of a newly developed instrument to identify flaws or assess time requirements.

pretest-posttest design An experimental design in which data are collected from research subjects both before and after introducing an intervention; also called a *before-after design*.

prevalence study A cross-sectional study undertaken to estimate the proportion of a population having a particular condition (e.g., multiple sclerosis) at a given point in time.

primary source First-hand reports of facts or findings; in research, the original report prepared by the investigator who conducted the study.

principal investigator (PI) The person who is the lead researcher and who will have primary responsibility for overseeing the project.

probability sampling The selection of sampling units (e.g., participants) from a population using random procedures (e.g., simple random sampling, cluster sampling).

probing Eliciting more useful or detailed information from a respondent in an interview than was volunteered in the first reply.

problem statement An expression of a dilemma or disturbing situation that needs investigation.

process analysis A descriptive analysis of the process by which a program or intervention gets implemented and used in practice.

process consent In a qualitative study, an ongoing, transactional process of negotiating consent with study participants, allowing them to play a collaborative role in the decision-making regarding their continued participation.

product moment correlation coefficient (r) A correlation coefficient designating the magnitude of relationship between two variables measured on at least an interval scale; also called *Pearson's r* .

projective technique A method of measuring psychological attributes (values, attitudes, personality) by providing respondents with unstructured stimuli to which to respond.

prolonged engagement In qualitative research, the investment of sufficient time during data collection to have an in-depth understanding of the group under study, thereby enhancing credibility.

propensity score A score that captures the conditional probability of exposure to a treatment, given various preintervention characteristics; can be used to match comparison groups to enhance internal validity.

proportional hazards model A model in which independent variables are used to predict the risk (hazard) of experiencing an event at a given point in time.

proportionate sample A sample that results when the researcher samples from different strata of the population in proportion to their representation in the population.

proposal A document communicating a research problem, its significance, proposed procedures for solving the problem, and, when funding is sought, how much the study will cost.

prospective design A study design that begins with an examination of presumed causes (e.g., cigarette smoking) and then goes forward in time to observe presumed effects (e.g., lung cancer); also called a *cohort design*.

psychometric assessment An evaluation of the quality of an instrument, based primarily on evidence of its reliability and validity.

psychometrics The theory underlying principles of measurement and the application of the theory in the development of measuring tools.

publication bias The tendency for published studies to systematically over-represent statistically significant findings, reflecting the tendency of researchers, reviewers, and editors to not publish negative results; also called a *bias against the null hypothesis*.

purposive (purposeful) sampling A nonprobability sampling method in which the researcher selects participants based on personal judgment about which ones will be most informative; also called *judgmental sampling*.

Q sort A data collection method in which participants sort statements into a number of piles (usually 9 or 11) according to some bipolar dimension (e.g., most helpful/least helpful).

qualitative analysis The organization and interpretation of narrative data for the purpose of discovering important underlying themes, categories, and patterns of relationships.

qualitative data Information collected in narrative (nonnumeric) form, such as the transcript of an unstructured interview.

qualitative research The investigation of phenomena, typically in an in-depth and holistic fashion, through the collection of rich narrative materials using a flexible research design.

qualitizing The process of reading and interpreting quantitative data in a qualitative manner.

quantitative analysis The manipulation of numeric data through statistical procedures for the purpose of describing phenomena or assessing the magnitude and reliability of relationships among them.

quantitative data Information collected in a quantified (numeric) form.

quantitative research The investigation of phenomena that lend themselves to precise measurement and quantification, often involving a rigorous and controlled design.

quantitizing The process of coding and analyzing qualitative data quantitatively.

quasi-experimental design A design for an intervention study in which subjects are not randomly assigned to treatment conditions; also called a *nonrandomized trial* or a *controlled trial without randomization*.

quasi-statistics An “accounting” system used to assess the validity of conclusions derived from qualitative analysis.

query letter A letter written to a journal editor to ask whether there is interest in a proposed manuscript, or to a funding source to ask if there is interest in a proposed study.

questionnaire A document used to gather self-report data via self-administration of questions.

quota sampling A nonrandom sampling method in which “quotas” for certain sample characteristics are established to increase the representativeness of the sample.

r The symbol for a bivariate correlation coefficient, summarizing the magnitude and direction of a relationship between two variables measured on an interval or ratio scale.

R The symbol for the multiple correlation coefficient, indicating the magnitude (but not direction) of the relationship between the dependent variable and multiple independent variables, taken together.

R² The squared multiple correlation coefficient, indicating the proportion of variance in the dependent variable explained by a group of independent variables.

random assignment The assignment of subjects to treatment conditions in a random manner (i.e., in a manner determined by chance alone); also called *randomization*.

random effects model In meta-analysis, a model in which studies are not assumed to be measuring the same overall effect, but rather reflect a distribution of effects; often preferred to a fixed effect model when there is extensive heterogeneity of effects.

random number table A table displaying hundreds of digits (from 0 to 9) in random order; each number is equally likely to follow any other.

random sampling The selection of a sample such that each member of a population has an equal probability of being included.

randomization The assignment of subjects to treatment conditions in a random manner (i.e., in a manner determined by chance alone); also called *random assignment*.

randomized block design An experimental design involving two or more factors (independent variables), with only some experimentally manipulated.

randomized clinical trial (RCT) A full experimental test of an intervention, involving random assignment to treatment groups; sometimes, phase III of a full clinical trial.

randomized consent design An experimental design in which subjects are randomized prior to informed consent; also called a *Zelen design*.

randomness An important concept in quantitative research, involving having certain features of the study established by chance rather than by design or personal preference.

range A measure of variability, computed by subtracting the lowest value from the highest value in a distribution of scores.

rating scale A scale that requires ratings of an object or concept along a continuum.

ratio measurement A measurement level with equal distances between scores and a true meaningful zero point (e.g., weight).

raw data Data in the form in which they were collected, without being coded or analyzed.

reactivity A measurement distortion arising from the study participant's awareness of being observed, or, more generally, from the effect of the measurement procedure itself.

readability The ease with which materials (e.g., a questionnaire) can be read by people with varying reading skills, often empirically determined through readability formulas.

RE-AIM framework (*Reach, Efficacy, Adoption, Implementation, and Maintenance*) A model for designing and evaluating intervention research that is strong on multiple forms of study validity.

receiver operating characteristic curve (ROC curve) A method used in developing and refining a screening instrument to determine the best cutoff point for “caseness.”

rectangular matrix A matrix of data (variables × subjects) that contains no missing values for any variable.

recursive model A path model in which the causal flow is unidirectional, without any feedback loops; opposite of a nonrecursive model.

refereed journal A journal in which decisions about the acceptance of manuscripts are made based on recommendations from peer reviewers.

reflexive notes Notes that document a qualitative researcher’s personal experiences, reflections, and progress in the field.

reflexivity In qualitative studies, critical self-reflection about one’s own biases, preferences, and preconceptions.

regression analysis A statistical procedure for predicting values of a dependent variable based on one or more independent variables.

regression discontinuity design A quasi-experimental design that involves *systematic* assignment of subjects to groups based on cut-off scores on a preintervention measure.

relationship A bond or a connection between two or more variables.

relative risk (RR) An estimate of risk of “caseness” in one group compared to another, computed by dividing the absolute risk for one group (e.g., an exposed group) by the absolute risk for another (e.g., the nonexposed); also called the *risk ratio*.

relative risk reduction (RRR). The estimated proportion of baseline (untreated) risk that is reduced through exposure to the intervention, computed by dividing the absolute risk reduction (ARR) by the absolute risk for the control group.

reliability The degree of consistency or dependability with which an instrument measures an attribute.

reliability coefficient A quantitative index, usually ranging in value from .00 to 1.00, that provides an estimate of how reliable an instrument is (e.g., Cronbach’s alpha).

repeated-measures ANOVA An analysis of variance used when there are multiple measures of the dependent variable over time (e.g., in a crossover design).

replication The deliberate repetition of research procedures in a second investigation for the purpose of determining if earlier results can be confirmed.

representative sample A sample whose characteristics are comparable to those of the population from which it is drawn.

research Systematic inquiry that uses orderly, disciplined methods to answer questions or solve problems.

research control See *control*.

research design The overall plan for addressing a research question, including specifications for enhancing the study's integrity.

research hypothesis The actual hypothesis a researcher wishes to test (as opposed to the *null hypothesis*), stating the anticipated relationship between two or more variables.

research methods The techniques used to structure a study and to gather and analyze information in a systematic fashion.

research misconduct Fabrication, falsification, plagiarism, or other practices that seriously deviate from those that are commonly accepted within the scientific community for conducting or reporting research.

research problem An enigmatic or perplexing condition that can be investigated through disciplined inquiry.

research proposal See *proposal*.

research question A statement of the specific query the researcher wants to answer to address a research problem.

research report A document summarizing the main features of a study, including the research question, the methods used to address it, the findings, and the interpretation of the findings.

research utilization The use of some aspect of a study in an application unrelated to the original research.

researcher credibility The faith that can be put in a researcher, based on his or her training, qualifications, and experience.

residuals In multiple regression, the error term or unexplained variance.

respondent In a self-report study, the study participant responding to questions posed by the researcher.

response rate The rate of participation in a study, calculated by dividing the number of persons participating by the number of persons sampled.

response set bias The measurement error resulting from the tendency of some individuals to respond to items in characteristic ways (e.g., always agreeing), independently of item content.

results The answers to research questions, obtained through an analysis of the collected data.

retrospective design A study design that begins with the manifestation of the dependent variable in the present (e.g., lung cancer), followed by a search for a presumed cause occurring in the past (e.g., cigarette smoking).

risk/benefit ratio The relative costs and benefits, to an individual subject and to society at large, of participation in a study; also, the relative costs and benefits of implementing an innovation.

risk ratio *See* relative risk

rival hypothesis An alternative explanation, competing with the researcher's hypothesis, for interpreting the results of a study.

sample A subset of a population, selected to participate in a study.

sampling The process of selecting a portion of the population to represent the entire population.

sampling bias Distortions that arise when a sample is not representative of the population from which it was drawn.

sampling distribution A theoretical distribution of a statistic, using the values of the statistic computed from an infinite number of samples as the data points in the distribution.

sampling error The fluctuation of the value of a statistic from one sample to another drawn from the same population.

sampling frame A list of all the elements in the population, from which the sample is drawn.

sampling plan The formal plan specifying a sampling method, a sample size, and procedures for recruiting subjects.

saturation The collection of qualitative data to the point where a sense of closure is attained because new data yield redundant information.

scale A composite measure of an attribute, involving the combination of several items that have a logical and empirical relationship to each other, resulting in the assignment of a score to place people on a continuum with respect to the attribute.

scatter plot A graphic representation of the relationship between two variables.

scientific merit The degree to which a study is methodologically and conceptually sound.

scientific method A set of orderly, systematic, controlled procedures for acquiring dependable, empirical—and typically quantitative—information; the methodologic approach associated with the positivist paradigm.

screening instrument An instrument used to determine whether potential subjects for a study meet eligibility criteria, or for determining whether a person tests positive for a specified condition.

secondary analysis A form of research in which the data collected by one researcher are reanalyzed by another investigator to answer new questions.

secondary source Secondhand accounts of events or facts; in research, a description of a study prepared by someone other than the original researcher.

selective coding A level of coding in a grounded theory study that involves selecting the core category, systematically integrating relationships between the core category and other categories, and validating those relationships.

selection threat (self-selection) A threat to the internal validity of the study resulting from preexisting differences between groups under study; the differences affect the dependent variable in ways extraneous to the effect of the independent variable.

self-determination A person's ability to voluntarily decide whether or not to participate in a study.

self-report A method of collecting data that involves a direct report of information by the person who is being studied (e.g., by interview or questionnaire).

semantic differential A technique used to measure attitudes in which respondents rate concepts of interest on a series of bipolar rating scales.

semi-structured interview An interview in which the researcher has a list of topics to cover rather than specific questions to ask.

sensitivity The ability of screening instruments to correctly identify a "case," that is, to correctly diagnose a condition.

sensitivity analysis An effort to test how sensitive the results of a statistical analysis are to changes in assumptions or in the way the analysis was done (e.g., in a meta-analysis, used to assess whether conclusions are sensitive to the quality of the studies included).

sequential clinical trial A trial in which data are continuously analyzed, and *stopping rules* are used to decide when the evidence about treatment efficacy is sufficiently strong that the trial can be stopped.

setting The physical location and conditions in which data collection takes place in a study.

significance level The probability that an observed relationship could be caused by chance; significance at the .05 level indicates the probability that a relationship of the observed magnitude would be found by chance only 5 times out of 100.

sign test A nonparametric test for comparing two paired groups based on the relative ranking of values between the pairs.

simple random sampling Basic probability sampling involving the selection of sample members from a sampling frame through completely random procedures.

simultaneous multiple regression A multiple regression analysis in which all predictor variables are entered into the equation simultaneously.

single-subject experiment An intervention study that tests the effectiveness of an intervention with a single subject, typically using a time series design.

site The overall location where a study is undertaken.

skewed distribution The asymmetric distribution of a set of data values around a central point.

snowball sampling The selection of participants through referrals from earlier participants; also called *network sampling*.

social desirability response set A bias in self-report instruments created when participants have a tendency to misrepresent their opinions in the direction of answers consistent with prevailing social norms.

space triangulation The collection of data on the same phenomenon in multiple sites, to enhance the validity of the findings.

Spearman's rank-order correlation (Spearman's rho) A correlation coefficient indicating the magnitude of a relationship between variables measured on the ordinal scale.

specificity The ability of a screening instrument to correctly identify noncases.

standard deviation The most frequently used statistic for measuring the degree of variability in a set of scores.

standard error The standard deviation of a sampling distribution, such as the sampling distribution of the mean.

standard scores Scores expressed in terms of standard deviations from the mean, with raw scores transformed to have a mean of zero and a standard deviation of one; also called *z* scores.

standardized mean difference (SMD) In meta-analysis, the effect size for comparing two group means, computed by subtracting one mean from the other and dividing by the pooled standard deviation; also called Cohen's *d*.

statement of purpose A broad declarative statement of the overall goals of a study.

statistic An estimate of a parameter, calculated from sample data.

statistical analysis The organization and analysis of quantitative data using statistical procedures, including both descriptive and inferential statistics.

statistical conclusion validity The degree to which inferences about relationships and differences from a statistical analysis of the data are accurate.

statistical control The use of statistical procedures to control extraneous influences on the dependent variable.

statistical inference The process of inferring attributes about the population based on information from a sample, using laws of probability.

statistical power The ability of the research design to detect true relationships among variables.

statistical significance A term indicating that the results from an analysis of sample data are unlikely to have been caused by chance, at a specified level of probability.

statistical test An analytic tool that estimates the probability that obtained results from a sample reflect true population values.

stepwise multiple regression A multiple regression analysis in which predictor variables are entered into the equation in steps, in the order in which the increment to R is greatest.

stipend A monetary payment to individuals participating in a study to serve as an incentive for participation and/or to compensate for time and expenses.

strata Subdivisions of the population according to some characteristic (e.g., males and females); singular is *stratum*.

stratified random sampling The random selection of study participants from two or more strata of the population independently.

structural equations Equations representing the magnitude and nature of hypothesized relations among sets of variables in a theory.

structured data collection An approach to collecting data from participants, either through self-report or observations, in which response categories are specified in advance.

study participant An individual who participates and provides information in a study.

study section Within the National Institutes of Health, a group of peer reviewers that evaluates grant applications in the first phase of the review process.

subgroup effect The differential effect of the independent variable on the dependent variable for subsets of the sample.

subject An individual who participates and provides data in a study; term used primarily in quantitative research.

summated rating scale See *Likert scale*.

survey research Nonexperimental research that obtains information about people's activities, beliefs, preferences, and attitudes via direct questioning.

survival analysis A statistical procedure used when the dependent variable represents a time interval between an initial event (e.g., onset of a disease) and an end event (e.g., death).

symmetric distribution A distribution of values with two halves that are mirror images of the each other.

systematic extension replication A replication of an earlier study wherein methods are not duplicated, but deliberate attempts are made to test the implication of the original research.

systematic review A rigorous and systematic synthesis of research findings on a common or strongly related research question.

systematic sampling The selection of sample members such that every *k*th (e.g., every tenth) person or element in a sampling frame is chosen.

table shell A table without any numeric values, prepared in advance of data analysis as a guide to the analyses to be performed.

tacit knowledge Information about a culture that is so deeply embedded that members do not talk about it or may not even be consciously aware of it.

target population The entire population in which a researcher is interested and to which he or she would like to generalize the study results.

taxonomy In an ethnographic analysis, a system of classifying and organizing terms and concepts, developed to illuminate the internal organization of a domain and the relationship among the subcategories of the domain.

template analysis style An approach to qualitative analysis in which a preliminary template or coding scheme is used to sort the narrative data.

test statistic A statistic used to test for the statistical reliability of relationships between variables (e.g., chi-squared, *t*); the sampling distributions of test statistics are known for circumstances in which the null hypothesis is true.

test-retest reliability Assessment of the stability of an instrument by correlating the scores obtained on two administrations.

testing threat A threat to a study's internal validity that occurs when the administration of a pretest or baseline measure of a dependent variable results in changes on the variable, apart from the effect of the independent variable.

theme A recurring regularity emerging from an analysis of qualitative data.

theoretical notes In field studies, notes detailing the researcher's interpretations of observed behavior.

theoretical sampling In qualitative studies, the selection of sample members based on emerging findings to ensure adequate representation of important theoretical categories.

theory An abstract generalization that presents a systematic explanation about the relationships among phenomena.

theory triangulation The use of competing theories or hypotheses in the analysis and interpretation of data.

thick description A rich and thorough description of the research context in a qualitative study.

think aloud method A qualitative method used to collect data about cognitive processes (e.g., decision-making), in which people's reflections on decisions or problem-solving are captured as they are being made.

time sampling In structured observations, the sampling of time periods during which observations will take place.

time series design A quasi-experimental design involving the collection of data over an extended time period, with multiple data collection points both prior to and after an intervention.

time triangulation The collection of data on the same phenomenon or about the same people at different points in time, to enhance validity.

topic guide A list of broad question areas to be covered in a semistructured interview or focus group interview.

tracing Procedures used to relocate subjects to avoid attrition in a longitudinal study.

transferability The extent to which qualitative findings can be transferred to other settings or groups; analogous to generalizability.

treatment The experimental intervention under study; the condition being manipulated.

treatment group The group receiving the intervention being tested; the experimental group.

trend study A form of longitudinal study in which different samples from a population are studied over time with respect to some phenomenon (e.g., annual Gallup polls on abortion attitudes).

triangulation The use of multiple methods to collect and interpret data about a phenomenon, so as to converge on an accurate representation of reality.

true score A hypothetical score that would be obtained if a measure were infallible.

trustworthiness The degree of confidence qualitative researchers have in their data, assessed using the criteria of credibility, transferability, dependability, confirmability, and authenticity.

t-test A parametric statistical test for analyzing the difference between two means.

Type I error An error created by rejecting the null hypothesis when it is true (i.e., the researcher concludes that a relationship exists when in fact it does not—a false positive).

Type II error An error created by accepting the null hypothesis when it is false (i.e., the researcher concludes that *no* relationship exists when in fact it does—a false negative).

two-tailed tests Statistical tests in which both ends of the sampling distribution are used to determine improbable values.

unimodal distribution A distribution of values with one peak (high frequency).

unit of analysis The basic unit or focus of a researcher's analysis—typically individual study participants.

univariate descriptive study A study that gathers information on the occurrence, frequency of occurrence, or average value of the variables of interest, one variable at a time, without focusing on interrelationships among variables.

univariate statistics Statistical analysis of a single variable for purposes of description (e.g., computing a mean).

unstructured interview An interview in which the researcher asks respondents questions without having a predetermined plan regarding the content or flow of information to be gathered.

unstructured observation The collection of descriptive data through direct observation that is not guided by a formal, prespecified plan for observing, enumerating, or recording the information.

utilization See *research utilization*.

validity A quality criterion referring to the degree to which inferences made in a study are accurate and well-founded; in measurement, the degree to which an instrument measures what it is intended to measure.

validity coefficient An index, usually ranging from .00 to 1.00, yielding an estimate of how valid an instrument is.

variability The degree to which values on a set of scores are dispersed.

variable An attribute that varies, that is, takes on different values (e.g., body temperature, heart rate).

variance A measure of variability or dispersion, equal to the standard deviation squared.

vignette A brief description of an event, person, or situation to which respondents are asked to express their reactions.

virtual (operational) replication A replication of an earlier study wherein the researcher approximates the methods used in the reference study.

visual analog scale (VAS) A scaling procedure used to measure certain clinical symptoms (e.g., pain, fatigue) by having people indicate on a straight line the intensity of the symptom.

vulnerable subjects Special groups of people whose rights in studies need special protection because of their inability to provide meaningful informed consent or because their circumstances place them at higher-than-average-risk of adverse effects (e.g., children, unconscious patients).

web-based survey The administration of a self-administered questionnaire over the Internet on a dedicated survey website.

weighting A correction procedure used to estimate population values when a disproportionate sampling design has been used.

Wilcoxon signed ranks test A nonparametric statistical test for comparing two paired groups, based on the relative ranking of values between the pairs.

wild code A coded value that is not legitimate within the coding scheme for that data set.

Wilk's lambda An index used in discriminant function analysis to indicate the proportion of variance in the dependent variable *unaccounted* for by predictors; $(\lambda) = 1 - R^2$.

within-subjects design A research design in which a single group of subjects is compared under different conditions or at different points in time (e.g., before and after surgery).

z score A standard score, expressed in terms of standard deviations from the mean.

Zelen design An experimental design in which subjects are randomized prior to informed consent; also called *randomized consent design*.