



Overview of the Research Process in Qualitative and Quantitative Studies

Researchers usually work within a paradigm that is consistent with their world view, and that gives rise to the types of question that excite their curiosity. The maturity of the concept of interest also may lead to one or the other paradigm: when little is known about a topic, a qualitative approach is often more fruitful than a quantitative one.

The progression of activities differs for qualitative and quantitative researchers; we discuss the flow of both in this chapter. First, however, we briefly describe broad categories of quantitative and qualitative research.

MAJOR CLASSES OF QUANTITATIVE AND QUALITATIVE RESEARCH

Experimental and Nonexperimental Studies in Quantitative Research

A basic distinction in quantitative studies is the difference between experimental and nonexperimental research. In **experimental research**, researchers actively introduce an intervention or treatment. In **nonexperimental research**, on the other hand, researchers collect data without making changes or introducing treatments. For example, if a researcher gave bran flakes to one group of subjects and prune juice to another to evaluate which method facilitated elimination more effectively, the

study would be experimental because the researcher intervened in the normal course of things. In this example, the researcher created an “active variable” involving a dietary intervention. If, on the other hand, a researcher compared elimination patterns of two groups of people whose regular eating patterns differed—for example, some normally took foods that stimulated bowel elimination and others did not—there is no intervention. Such a study focuses on existing attributes and is nonexperimental.

Experimental studies are explicitly designed to test causal relationships. Sometimes nonexperimental studies also seek to elucidate or detect causal relationships, but doing so is tricky and usually is less conclusive. Experimental studies offer the possibility of greater control over extraneous variables than nonexperimental studies.



Example of experimental research:

Johnson (2001) tested the effects of a submaximal exercise protocol, in comparison with a near-maximal voluntary contraction protocol, on continence control and muscle contraction strength among women with genuine stress urinary incontinence.

In this example, the researcher intervened by designating that some women would receive the submaximal exercise protocol and others would not. In other words, the researcher *controlled* the

independent variable, which in this case was the type of protocol.

**Example of nonexperimental research:**

Wong and her co-researchers (2002) searched for factors that contributed to hospital readmission in a Hong Kong hospital. A readmitted group was compared with a nonreadmitted group of patients in terms of demographic characteristics and health conditions upon admission.

In this nonexperimental study, the researchers did not intervene in any way; they observed and measured subjects' attributes. They explored whether there were identifiable characteristics and conditions that distinguished the two groups of patients, with the aim of discovering opportunities to reduce readmissions.

Research Traditions in Qualitative Research

Qualitative studies are often rooted in research traditions that originate in the disciplines of anthropology, sociology, and psychology. Three such traditions have had especially strong influences on qualitative nursing research and are briefly describe here. Chapter 11 provides a fuller discussion of alternative research traditions and the methods associated with them.

The **grounded theory** tradition, which has its roots in sociology, seeks to describe and understand the key social psychological and structural processes that occur in a social setting. Grounded theory was developed in the 1960s by two sociologists, Glaser and Strauss (1967). The focus of most grounded theory studies is on a developing social experience—the social and psychological stages and phases that characterize a particular event or episode. A major component of grounded theory is the discovery of a core variable that is central in explaining what is going on in that social scene. Grounded theory researchers strive to generate comprehensive explanations of phenomena that are grounded in reality.

**Example of a grounded theory study:**

Hauck and Irurita (2002) conducted a grounded theory study to explain the maternal

process of managing late stages of breastfeeding and weaning the child from the breast.

Phenomenology, which has its disciplinary roots in both philosophy and psychology and is rooted in a philosophical tradition developed by Husserl and Heidegger, is concerned with the lived experiences of humans. Phenomenology is an approach to thinking about what life experiences of people are like and what they mean. The phenomenological researcher asks the questions: What is the *essence* of this phenomenon as experienced by these people? Or, What is the meaning of the phenomena to those who experience it?

**Example of a phenomenological study:**

Sundin, Norberg, and Jansson (2001) conducted a phenomenological study to illuminate the lived experiences of care providers who were highly skilled communicators in their relationships with patients with stroke and aphasia.

Ethnography is the primary research tradition within anthropology, and provides a framework for studying the meanings, patterns, and experiences of a defined cultural group in a holistic fashion. Ethnographers typically engage in extensive fieldwork, often participating to the extent possible in the life of the culture under study. Ethnographic research is in some cases concerned with broadly defined cultures (e.g., Haitian refugee communities), but sometimes focuses on more narrowly defined cultures (e.g., the culture of emergency departments). The aim of ethnographers is to learn from (rather than to study) members of a cultural group, to understand their world view as they perceive and live it.

**Example of an ethnographic study:**

Powers (2001) undertook an ethnographic analysis of a nursing home residence, focusing on the ethical issues of daily living affecting nursing home residents with dementia.

MAJOR STEPS IN A QUANTITATIVE STUDY

In quantitative studies, researchers move from the beginning point of a study (the posing of a question)

to the end point (the obtaining of an answer) in a fairly linear sequence of steps that is broadly similar across studies. In some studies, the steps overlap, whereas in others, certain steps are unnecessary. Still, there is a general flow of activities that is typical of a quantitative study. This section describes that flow, and the next section describes how qualitative studies differ.

Phase 1: The Conceptual Phase

The early steps in a quantitative research project typically involve activities with a strong conceptual or intellectual element. These activities include reading, conceptualizing, theorizing, reconceptualizing, and reviewing ideas with colleagues or advisers. During this phase, researchers call on such skills as creativity, deductive reasoning, insight, and a firm grounding in previous research on the topic of interest.

Step 1: Formulating and Delimiting the Problem

One of the first things a researcher must do is develop a research problem and **research questions**. Good research depends to a great degree on good questions. Without a significant, interesting problem, the most carefully and skillfully designed research project is of little value.

Quantitative researchers usually proceed from the selection of a broad problem area to the development of specific questions that are amenable to empirical inquiry. In developing a research question to be studied, nurse researchers must pay close attention to substantive issues (Is this research question significant, given the existing base of knowledge?); clinical issues (Could findings from this research be useful in clinical practice?); and methodologic issues (How can this question best be studied to yield high-quality evidence?). The identification of research questions must also take into consideration practical and ethical concerns.



TIP: A critical ingredient in developing good research questions is personal interest. We offer this advice to those of you who plan to undertake a research project: Begin with topics that

fascinate you or about which you have a passionate interest or curiosity.

Step 2: Reviewing the Related Literature

Quantitative research is typically conducted within the context of previous knowledge. To build on existing theory or research, quantitative researchers strive to understand what is already known about a research problem. A thorough **literature review** provides a foundation on which to base new knowledge and usually is conducted well before any data are collected in quantitative studies. For clinical problems, it would likely also be necessary to learn as much as possible about the “status quo” of current procedures relating to the topic, and to review existing practice guidelines or protocols.

A familiarization with previous studies can also be useful in suggesting research topics or in identifying aspects of a problem about which more research is needed. Thus, a literature review sometimes precedes the delineation of the research problem.

Step 3: Undertaking Clinical Fieldwork

In addition to refreshing or updating clinical knowledge based on written work, researchers embarking on a clinical nursing study benefit from spending time in clinical settings, discussing the topic with clinicians and health care administrators, and observing current practices. Sterling (2001) notes that such clinical fieldwork can provide perspectives on recent clinical trends, current diagnostic procedures, and relevant health care delivery models; it can also help researchers better understand affected clients and the settings in which care is provided. In addition to expanding the researchers’ clinical and conceptual knowledge, such fieldwork can be valuable in developing methodologic tools for strengthening the study. For example, in the course of clinical fieldwork researchers might learn what extraneous variables need to be controlled, or might discover the need for Spanish-speaking research assistants.

As with literature reviews, clinical fieldwork may serve as a stimulus for developing research questions and may be the first step in the process for some researchers.

Step 4: Defining the Framework and Developing Conceptual Definitions

Theory is the ultimate aim of science in that it transcends the specifics of a particular time, place, and group of people and aims to identify regularities in the relationships among variables. When quantitative research is performed within the context of a theoretical framework—that is, when previous theory is used as a basis for generating predictions that can be tested through empirical research—the findings may have broader significance and utility.

Even when the research question is not embedded in a theory, researchers must have a clear sense of the concepts under study. Thus, an important task in the initial phase of a project is the development of conceptual definitions.

Step 5: Formulating Hypotheses

A **hypothesis** is a statement of the researcher's expectations about relationships between the variables under investigation. Hypotheses, in other words, are predictions of expected outcomes; they state the relationships researchers expect to find as a result of the study.

The research question identifies the concepts under investigation and asks how the concepts might be related; a hypothesis is the predicted answer. For example, the initial research question might be phrased as follows: Is preeclampsia in pregnant women associated with stress factors present during pregnancy? This might be translated into the following hypothesis: Pregnant women with a higher incidence of stressful events during pregnancy will be more likely than women with a lower incidence of stress to experience preeclampsia. Most quantitative studies are designed to test hypotheses through statistical analysis.

Phase 2: The Design and Planning Phase

In the second major phase of a quantitative research project, researchers make decisions about the methods and procedures to be used to address the research question, and plan for the actual

collection of data. Sometimes the nature of the question dictates the methods to be used, but more often than not, researchers have considerable flexibility to be creative and make many decisions. These methodologic decisions usually have crucial implications for the validity and reliability of the study findings. If the methods used to collect and analyze research data are seriously flawed, then the evidence from the study may be of little value.

Step 6: Selecting a Research Design

The **research design** is the overall plan for obtaining answers to the questions being studied and for handling some of the difficulties encountered during the research process. A wide variety of research designs is available for quantitative studies, including numerous experimental and nonexperimental designs.

In designing the study, researchers specify which specific design will be adopted and what controls will be used to minimize bias and enhance the interpretability of results. In quantitative studies, research designs tend to be highly structured, with tight controls over extraneous variables. Research designs also indicate other aspects of the research—for example, how often subjects will be measured or observed, what types of comparisons will be made, and where the study will take place. The research design is essentially the architectural backbone of the study.

Step 7: Developing Protocols for the Intervention

In experimental research, researchers actively intervene and create the independent variable, which means that people in the sample will be exposed to different treatments or conditions. For example, if we were interested in testing the effect of biofeedback in treating hypertension, the independent variable would be biofeedback compared with either an alternative treatment (e.g., relaxation therapy), or with no treatment. The **intervention protocol** for the study would need to be developed, specifying exactly what the biofeedback treatment would entail (e.g., who would administer it, how frequently and over how long a period the treatment would last, what specific equipment would be used,

and so on) *and* what the alternative condition would be. The goal of well-articulated protocols is to have all subjects in each group treated in the same way. (In nonexperimental research, of course, this step would not be necessary.)

Step 8: Identifying the Population to be Studied

Before selecting subjects, quantitative researchers need to know what characteristics participants should possess. Researchers and others using the findings also need to know to whom study results can be generalized. Thus, during the planning phase of quantitative studies, researchers must identify the population to be studied. The term **population** refers to the aggregate or totality of those conforming to a set of specifications. For example, we might specify nurses (RNs) and residence in the United States as attributes of interest; the study population would then consist of all licensed RNs who reside in the United States. We could in a similar fashion define a population consisting of *all* children younger than 10 years of age with muscular dystrophy in Canada, or *all* the change-of-shift reports for the year 2002 in Massachusetts General Hospital.

Step 9: Designing the Sampling Plan

Research studies almost always rely on a **sample** of subjects, who are a subset of the population. It is clearly more practical and less costly to collect data from a sample than from an entire population. The risk, however, is that the sample might not adequately reflect the population's behaviors, traits, symptoms, or beliefs.

Various methods of obtaining samples are available. These methods vary in cost, effort, and skills required, but their adequacy is assessed by the same criterion: the **representativeness** of the selected sample. That is, the quality of the sample for quantitative studies depends on how typical, or representative, the sample is of the population with respect to the variables of concern in the study. Sophisticated sampling procedures can produce samples that have a high likelihood of being representative. The most sophisticated methods are

probability sampling methods, which use random procedures for selecting subjects. In a probability sample, every member of the population has an equal probability of being included in the sample. With **nonprobability sampling**, by contrast, there is no way of ensuring that each member of the population could be selected; consequently, the risk of a biased (unrepresentative) sample is greater. The design of a **sampling plan** includes the selection of a sampling method, the specification of the sample size (i.e., number of subjects), and the development of procedures for recruiting subjects.

Step 10: Specifying Methods to Measure the Research Variables

Quantitative researchers must develop methods to observe or measure the research variables as accurately as possible. Based on the conceptual definitions, the researcher selects or designs appropriate methods of operationalizing the variables and collecting data. A variety of quantitative data collection approaches exist. **Biophysiologic measurements** often play an important role in clinical nursing research. Through **self-reports**, another popular method of data collection, subjects are asked directly about their feelings, behaviors, attitudes, and personal traits (for example, in an interview with research personnel). Another technique is **observation**, wherein researchers collect data by observing and recording aspects of people's behavior.

Data collection methods vary in the degree of structure imposed on subjects. Quantitative approaches tend to be fairly structured, involving the use of a formal **instrument** that elicits the same information from every subject. Sometimes researchers need to develop their own instruments, but more often they use or adapt measuring instruments that have been developed by others. The task of measuring research variables and developing a **data collection plan** is a complex and challenging process that permits a great deal of creativity and choice. Before finalizing the data collection plan, researchers must carefully evaluate whether the chosen methods capture key concepts accurately.

Step 11: Developing Methods for Safeguarding Human/Animal Rights

Most nursing research involves human subjects, although some studies involve animals. In either case, procedures need to be developed to ensure that the study adheres to ethical principles. For example, forms often need to be developed to document that subjects' participation in the study was voluntary. Each aspect of the study plan needs to be reviewed to determine whether the rights of subjects have been adequately protected. Often that review involves a formal presentation to an external committee.

Step 12: Finalizing and Reviewing the Research Plan

Before actually collecting research data, researchers often perform a number of "tests" to ensure that plans will work smoothly. For example, they may evaluate the readability of any written materials to determine if people with below-average reading skills can comprehend them, or they may need to test whether technical equipment is functioning properly. If questionnaires are used, it is important to know whether respondents understand questions or find certain ones objectionable; this is usually referred to as **pretesting** the questionnaire. During final study preparations, researchers also have to determine the type of training to provide to those responsible for collecting data. If researchers have concerns about their study plans, they may undertake a **pilot study**, which is a small-scale version or trial run of the major study.

Normally, researchers have their research plan critiqued by peers, consultants, or other reviewers to obtain substantive, clinical, or methodologic feedback before implementing the plan. When researchers seek financial support for the study, a **proposal** typically is submitted to a funding source, and reviewers of the proposed plan usually suggest improvements. Students conducting a study as part of a course or degree requirement have their plans reviewed by faculty advisers. Even under other circumstances, however, researchers are well advised to ask individuals external to the project to assess preliminary plans.

Experienced researchers with fresh perspectives can often be invaluable in identifying pitfalls and shortcomings that otherwise might not have been recognized.

Phase 3: The Empirical Phase

The empirical portion of quantitative studies involves collecting research data and preparing those data for **analysis**. In many studies, the empirical phase is one of the most time-consuming parts of the investigation, although the amount of time spent collecting data varies considerably from one study to the next. If data are collected by distributing a written questionnaire to intact groups, this task may be accomplished in a matter of days. More often, however, data collection requires several weeks, or even months, of work.

Step 13: Collecting the Data

The actual collection of data in a quantitative study often proceeds according to a preestablished plan. The researcher's plan typically specifies procedures for the actual collection of data (e.g., where and when the data will be gathered); for describing the study to participants; and for recording information. Technological advances in the past few decades have expanded possibilities for automating data collection.

A considerable amount of both clerical and administrative work is required during data collection. Researchers typically must be sure, for example, that enough materials are available to complete the study; that participants are informed of the time and place that their presence may be required; that research personnel (such as interviewers) are conscientious in keeping their appointments; that schedules do not conflict; and that a suitable system of maintaining confidentiality of information has been implemented.

Step 14: Preparing the Data for Analysis

After data are collected, a few preliminary activities must be performed before data analysis begins. For instance, it is normally necessary to look through questionnaires to determine if they are usable.

Sometimes forms are left almost entirely blank or contain other indications of misinterpretation or noncompliance. Another step is to assign identification numbers to the responses or observations of different subjects, if this was not done previously.

Coding of the data is typically needed at this point. As noted in Chapter 2, coding involves the translation of verbal data into numeric form, according to a specified plan. This might mean assigning numeric codes to categorical variables such as gender (e.g., 1 for females and 2 for males). Coding might also be needed to categorize narrative responses to certain questions. For example, patients' verbatim responses to a question about the quality of nursing care they received during hospitalization might be coded into positive reactions (1), negative reactions (2), neutral reactions (3), or mixed reactions (4). Another preliminary step involves transferring the data from written documents onto computer files for subsequent analysis.

Phase 4: The Analytic Phase

Quantitative data gathered in the empirical phase are not reported in raw form. They are subjected to analysis and interpretation, which occurs in the fourth major phase of a project.

Step 15: Analyzing the Data

The data themselves do not provide answers to research questions. Ordinarily, the amount of data collected in a study is rather extensive; research questions cannot be answered by a simple perusal of numeric information. Data need to be processed and analyzed in an orderly, coherent fashion. Quantitative information is usually analyzed through statistical procedures. **Statistical analyses** cover a broad range of techniques, from simple procedures that we all use regularly (e.g., computing an average) to complex and sophisticated methods. Although some methods are computationally formidable, the underlying logic of statistical tests is relatively easy to grasp, and computers have eliminated the need to get bogged down with detailed mathematic operations.

Step 16: Interpreting the Results

Before the results of a study can be communicated effectively, they must be systematically interpreted.

Interpretation is the process of making sense of the results and of examining their implications. The process of interpretation begins with an attempt to explain the findings within the context of the theoretical framework, prior empirical knowledge, and clinical experience.

If research hypotheses have been supported, an explanation of the results may be straightforward because the findings fit into a previously conceived argument. If hypotheses are not supported, researchers must explain why this might be so. Is the underlying conceptualization wrong, or was it inappropriate for the research problem? Or do the findings reflect problems with the research methods rather than the framework (e.g., was the measuring tool inappropriate)? To provide sound explanations, researchers not only must be familiar with clinical issues, prior research, and conceptual underpinnings, but must be able to understand methodologic limitations of the study. In other words, the interpretation of the findings must take into account all available evidence about the study's reliability and validity. Researchers need to evaluate critically the decisions they made in designing the study and to recommend alternatives to others interested in the same research problem.

Phase 5: The Dissemination Phase

The analytic phase brings researchers full circle: it provides answers to the questions posed in the first phase of the project. However, researchers' responsibilities are not complete until the study results are disseminated.

Step 17: Communicating the Findings

A study cannot contribute evidence to nursing practice if the results are not communicated. The most compelling hypothesis, the most rigorous study, the most dramatic results are of no value to the nursing community if they are unknown. Another—and often final—task of a research project, therefore, is

the preparation of a **research report** that can be shared with others.

Research reports can take various forms: term papers, dissertations, journal articles, presentations at professional conferences, and so on. **Journal articles**—reports appearing in such professional journals as *Nursing Research*—usually are the most useful because they are available to a broad, international audience. There is also a growing number of outlets for research dissemination on the Internet.

Step 18: Utilizing the Findings in Practice

Many interesting studies have been conducted by nurses without having any effect on nursing practice or nursing education. Ideally, the concluding step of a high-quality study is to plan for its utilization in practice settings. Although nurse researchers may not themselves be in a position to implement a plan for utilizing research findings, they can contribute to the process by including in their research reports recommendations regarding how the evidence from the study could be incorporated into the practice of nursing and by vigorously pursuing opportunities to disseminate the findings to practicing nurses.

Organization of a Quantitative Research Project

The steps described in the preceding section represent an idealized conception of what researchers do. The research process rarely follows a neatly prescribed pattern of sequential procedures. Developments in one step, for example, may require alterations in a previously completed activity. Nevertheless, for the quantitative researcher, careful organization is very important.

Almost all research projects are conducted under some time pressure. Students in research courses have end-of-term deadlines; government-sponsored research involves funds granted for a specified time. Those who may not have such formal time constraints (e.g., graduate students working on theses or dissertations) normally have their own goals for project completion. Setting up a timetable in advance may be an important means of

meeting such goals. Having deadlines for tasks—even tentative ones—helps to impose order and delimits tasks that might otherwise continue indefinitely, such as problem selection and literature reviews.

It is not possible to give even approximate figures for the relative percentage of time that should be spent on each task in quantitative studies. Some projects require many months to develop and pretest the measuring instruments, whereas other studies use previously existing ones, for example. The write-up of the study may take many months or only a few days. Clearly, not all steps are equally time-consuming. It would make little sense simply to divide the available time by the number of tasks.

Let us suppose a researcher was studying the following problem: Is a woman's decision to have an annual mammogram related to her perceived susceptibility to breast cancer? Using the organization of steps outlined earlier, here are some of the tasks that might be undertaken:*

1. The researcher, who lost her mother to breast cancer, is concerned that many older women do not get a mammogram regularly. Her specific *research question* is whether mammogram practices are different for women who have different views about their susceptibility to breast cancer.
2. The researcher *reviews the research literature* on mammograms, factors affecting mammography decisions, and interventions designed to promote it.
3. The researcher does *clinical fieldwork* by discussing the problem with nurses and other health care professionals in various clinical settings (health clinics, private obstetrics and gynecology practices) and by informally discussing the problem with women in a support group for breast cancer victims.
4. The researcher *examines frameworks* for conceptualizing the problem. She finds that the

*This is, of course, only a partial list of tasks and is designed to illustrate the flow of activities; the flow in this example is more orderly than would ordinarily be true.

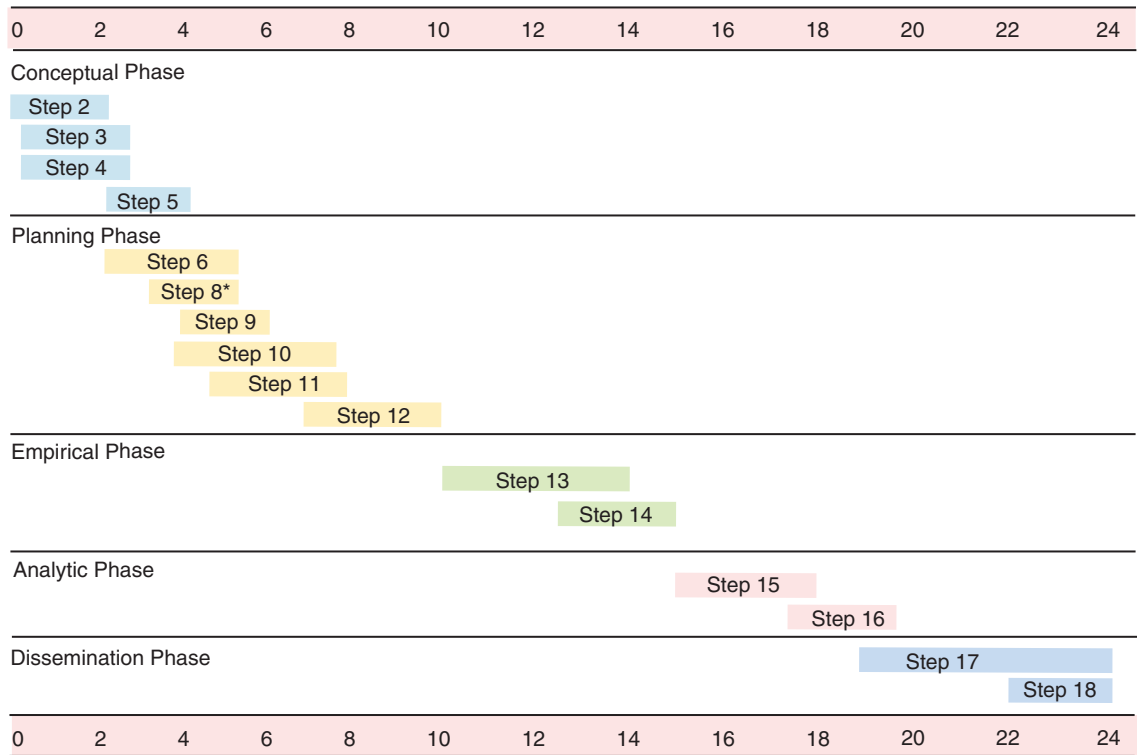
Health Belief Model (see Chapter 6) is relevant, and this helps her to develop a conceptual definition of susceptibility to breast cancer.

5. Based on what the researcher has learned, the following *hypothesis is developed*: Women who perceive themselves as not susceptible to breast cancer are less likely than other women to get an annual mammogram.
6. The researcher adopts a nonexperimental *research design* that involves collecting data from subjects at a single point in time. She designs the study to control the extraneous variables of age, marital status, and general health status.
7. There is no *intervention* in this study (the design is nonexperimental) and so this step does not need to be undertaken.
8. The researcher designates that the *population* of interest is women between the ages of 50 and 65 years living in Canada who have not been previously diagnosed as having any form of cancer.
9. The researcher decides to recruit for the *research sample* 200 women living in Toronto; they are identified at random using a telephone procedure known as random-digit dialing.
10. The *research variables will be measured* through self-report; that is, the independent variable (perceived susceptibility), dependent variable (mammogram history), and extraneous variables will be measured by asking the subjects a series of questions. The researcher decides to use existing measures of key variables, rather than developing new ones.
11. A human subjects committee at the researcher's institution is asked to review the research plans to determine whether the study *adheres to ethical standards*.
12. *Plans for the study are finalized*: the methods are reviewed and refined by colleagues with clinical and methodologic expertise; the data collection instruments are pretested; and interviewers who will collect the data are trained.
13. *Data are collected* by conducting telephone interviews with the research sample.
14. *Data are prepared for analysis* by coding them and entering them onto a computer file.
15. *Data are analyzed* using a statistical software package.
16. The results indicate that the hypothesis is supported; however, the researcher's *interpretation* must take into consideration that many women who were asked to participate in the study declined to do so. Moreover, the analysis revealed that mammogram use in the sample was substantially higher than had been reported in earlier studies.
17. The researcher presents an early report on her findings and interpretations at a conference of Sigma Theta Tau International. She subsequently publishes the report in the *Western Journal of Nursing Research*.
18. The researcher seeks out clinicians to discuss how the study findings can be *utilized in practice*.

The researcher in this study wants to conduct this study over a 2-year period. Figure 3-1 presents a hypothetical schedule for the research tasks to be completed. (The selection of the problem is not included because the research topic has already been identified.) Note that many steps overlap or are undertaken concurrently. Some steps are projected to involve little time, whereas others require months of work.

In developing a time schedule of this sort, a number of considerations should be kept in mind, including researchers' level of knowledge and methodologic competence. Resources available to researchers, in terms of research funds and personnel, greatly influence time estimates. In the present example, the researcher almost certainly would have required funding from a sponsor to help pay for the cost of hiring interviewers, unless she were able to depend on colleagues or students.

It is also important to consider the practical aspects of performing the study, which were not all enumerated in the preceding section. Obtaining supplies, securing permissions, getting approval for using



* Note that Step 7 was not necessary because this study did not involve an intervention.

FIGURE 3.1 Project timetable in calendar months.

forms or instruments, hiring staff, and holding meetings are all time-consuming, but necessary, activities.

Individuals differ in the kinds of tasks that appeal to them. Some people enjoy the preliminary phase, which has a strong intellectual component, whereas others are more eager to collect the data, a task that is more interpersonal. Researchers should, however, allocate a reasonable amount of time to do justice to each activity.

ACTIVITIES IN A QUALITATIVE STUDY

As we have just seen, quantitative research involves a fairly linear progression of tasks—researchers plan in advance the steps to be taken to maximize study integrity and then follow those steps as faithfully as possible. In qualitative studies, by contrast, the progression is closer to a circle than to a straight line—qualitative researchers are

continually examining and interpreting data and making decisions about how to proceed based on what has already been discovered.

Because qualitative researchers have a flexible approach to the collection and analysis of data, it is impossible to define the flow of activities precisely—the flow varies from one study to another, and researchers themselves do not know ahead of time exactly how the study will proceed. The following sections provide a sense of how qualitative studies are conducted by describing some major activities and indicating how and when they might be performed.

Conceptualizing and Planning a Qualitative Study

Identifying the Research Problem

Like quantitative researchers, qualitative researchers usually begin with a broad topic area to be studied.

However, qualitative researchers usually focus on an aspect of a topic that is poorly understood and about which little is known. Therefore, they do not develop hypotheses or pose highly refined research questions before going into the field. The general topic area may be narrowed and clarified on the basis of self-reflection and discussion with colleagues (or clients), but researchers may proceed with a fairly broad research question that allows the focus to be sharpened and delineated more clearly once the study is underway. (Qualitative researchers may also decide to focus on a topic that has been extensively researched quantitatively, but has had little qualitative attention.)

Doing Literature Reviews

There are conflicting opinions among qualitative researchers about doing a literature review at the outset of a study. At one extreme are those who believe that researchers should not consult the literature before collecting data. Their concern is that prior studies or clinical writings might influence researchers' conceptualization of the phenomena under study. According to this view, the phenomena should be elucidated based on participants' viewpoints rather than on any prior information. Those sharing this viewpoint often do a literature review at the end of the study rather than at the beginning. Others feel that researchers should conduct at least a preliminary up-front literature review to obtain some possible guidance (including guidance in identifying the kinds of biases that have emerged in studying the topic). Still others believe that a full up-front literature review is appropriate. In any case, qualitative researchers typically find a relatively small body of relevant previous work because of the types of question they ask.

Selecting and Gaining Entrée Into Research Sites

During the planning phase, qualitative researchers must also select a site that is consistent with the topic under study. For example, if the topic is the health beliefs of the urban poor, an inner-city neighborhood with a high percentage of low-income residents must be identified. In making such a decision, researchers may need to engage in anticipatory fieldwork (and

perhaps some clinical fieldwork) to identify the most suitable and information-rich environment for the conduct of the study. For a qualitative researcher, an ideal site is one in which (1) entry is possible; (2) a rich mix of people, interactions, and situations relating to the research question is present; and (3) the researcher can adopt—and maintain—an appropriate role vis-à-vis study participants. It is critical to appraise the suitability of the site (and the settings within the site where data will be collecting) before entering the field.

In some cases, researchers may have access to the site selected for the study. In others, however, researchers need to **gain entrée** into the site or settings within it. A site may be well suited to the needs of the research, but if researchers cannot “get in,” the study cannot proceed. Gaining entrée typically involves negotiations with **gatekeepers** who have the authority to permit entry into their world. Gaining entrée requires strong interpersonal skills, as well as familiarity with the customs and language of the site. In addition, certain strategies are more likely to succeed than others. For example, gatekeepers might be persuaded to be cooperative if it can be demonstrated that there will be direct benefits to them or their constituents—or if a great humanitarian purpose will be served. Researchers also need to gain the gatekeepers' trust, and that can only occur if researchers are congenial, persuasive, forthright about research requirements (e.g., how much time the fieldwork will require), and—perhaps most important—express genuine interest in and concern for the situations of the people in the site. In qualitative research, gaining entrée is likely to be an ongoing process of establishing relationships and rapport with gatekeepers and others at the site, including prospective informants.

Research Design in Qualitative Studies

As we have seen, quantitative researchers do not collect data until the research design has been finalized. In a qualitative study, by contrast, the research design is often referred to as an **emergent design**—a design that emerges during the course of data collection. Certain design features are guided by the qualitative research tradition within which the researcher is working, but nevertheless few

qualitative studies have rigidly structured designs that prohibit changes while in the field. As previously noted, qualitative designs are not concerned with the control of extraneous variables. The full context of the phenomenon is considered an important factor in understanding how it plays out in the lives of people experiencing it.

Although qualitative researchers do not always know in advance exactly how the study will progress in the field, they nevertheless must have some sense of how much time is available for field work and must also arrange for and test needed equipment, such as tape recorders or videotaping equipment. Other planning activities include such tasks as hiring and training interviewers to assist in the collection of data; securing interpreters if the informants speak a different language; and hiring appropriate consultants, transcribers, and support staff.

Addressing Ethical Issues

Qualitative researchers, like quantitative researchers, must also develop plans for addressing ethical issues—and, indeed, there are special concerns in qualitative studies because of the more intimate nature of the relationship that typically develops between researchers and study participants. Chapter 7 describes some of these concerns.

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Conducting the Qualitative Study

In qualitative studies, the tasks of sampling, data collection, data analysis, and interpretation typically take place iteratively. Qualitative researchers begin by talking with or observing a few people who have first-hand experience with the phenomenon under study. The discussions and observations are loosely structured, allowing for the expression of a full range of beliefs, feelings, and behaviors. Analysis and interpretation are ongoing, concurrent activities that guide choices about the kinds of people to sample next and the types of questions to ask or observations to make. The actual process of data analysis involves clustering together related types of narrative information into a coherent scheme. The analysis of qualitative data is an intensive, time-consuming activity.

As analysis and interpretation progress, researchers begin to identify **themes** and categories, which are used to build a rich description or theory of the phenomenon. The kinds of data obtained and the people selected as participants tend to become increasingly focused and purposeful as the conceptualization is developed and refined. Concept development and verification shape the sampling process—as a conceptualization or theory develops, the researcher seeks participants who can confirm and enrich the theoretical understandings, as well as participants who can potentially challenge them and lead to further theoretical development.

Quantitative researchers decide in advance how many subjects to include in the study, but qualitative researchers' sampling decisions are guided by the data themselves. Many qualitative researchers use the principle of **data saturation**, which occurs when themes and categories in the data become repetitive and redundant, such that no new information can be gleaned by further data collection.

In quantitative studies, researchers seek to collect high-quality data by using measuring instruments that have been demonstrated to be accurate and valid. Qualitative researchers, by contrast, must take steps to demonstrate the trustworthiness of the data while in the field. The central feature of these efforts is to confirm that the findings accurately reflect the experiences and viewpoints of participants, rather than perceptions of the researchers. One confirmatory activity, for example, involves going back to participants and sharing preliminary interpretations with them so that they can evaluate whether the researcher's thematic analysis is consistent with their experiences. Another strategy is to use triangulation to converge on a thorough depiction of the target phenomena.

An issue that qualitative researchers sometimes need to address is the development of appropriate strategies for leaving the field. Because qualitative researchers may develop strong relationships with study participants and entire communities, they need to be sensitive to the fact that their departure from the field might seem like a form of rejection or abandonment. Graceful departures and methods of achieving closure are important.

Disseminating Qualitative Findings

Qualitative nursing researchers also strive to share their findings with others at conferences and in journal articles. Qualitative findings, because of their depth and richness, also lend themselves more readily to book-length manuscripts than do quantitative findings. Regardless of researchers' position about *when* a literature review should be conducted, they usually include a summary of prior research in their reports as a means of providing context for the study.

Quantitative reports almost never present **raw data**—that is, data in the form they were collected, which are numeric values. Qualitative reports, by contrast, are usually filled with rich verbatim passages directly from participants. The excerpts are used in an evidentiary fashion to support or illustrate researchers' interpretations and theoretical formulations.



Example of raw data in a qualitative report:

Scannell-Desch (2000) studied the hardships and personal strategies of 24 female Vietnam war nurses. One of the emotional hardships they experienced had to do with the youth of the patients and the severity of their injuries. The researcher supported this with the following quote from an army nurse:

I had to amputate the leg of one patient. That was the first time I ever had to do that. His leg was hanging by a tissue band. I was new here, and the doctor yelled at me to “get the damn thing off.” Doctors take legs off, nurses don’t do that. He yelled at me again and said, “You do it.” (pp. 533–534).

Like quantitative researchers, qualitative nurse researchers want their findings used in nursing practice and subsequent research. Qualitative findings often are the basis for formulating hypotheses that are tested by quantitative researchers, and for developing measuring instruments for both research and clinical purposes. Qualitative findings can also provide a foundation for designing effective nursing interventions. Qualitative studies help to shape nurses' perceptions of a problem or situation and their conceptualizations of potential solutions.

RESEARCH EXAMPLES

In this section, we illustrate the progression of activities and discuss the time schedule of two studies (one quantitative and the other qualitative) conducted by the second author of this book.

Project Schedule for a Quantitative Study

Beck and Gable (2001) undertook a study to evaluate the accuracy of the newly developed Postpartum Depression Screening Scale (PDSS) in screening new mothers for this mood disorder.

Phase 1. Conceptual Phase: 1 Month

This phase was the shortest, in large part because much of the conceptual work had been done in Beck and Gable's (2000) first study, in which they actually developed the screening scale. The literature had already been reviewed, so all that was needed was to update the review. The same framework and conceptual definitions that had been used in the first study were used in the new study.

Phase 2. Design and Planning Phase: 6 Months

The second phase was time-consuming. It included not only fine-tuning the research design, but gaining entrée into the hospital where subjects were recruited and obtaining approval of the hospital's human subjects review committee. During this period, Beck met with statistical consultants and an instrument development consultant numerous times to finalize the study design.

Phase 3. Empirical Phase: 11 Months

Data collection took almost a year to complete. The design called for administering the PDSS to 150 mothers who were 6 weeks postpartum, and then scheduling a psychiatric diagnostic interview for them to determine if they were suffering from postpartum depression. Women were recruited into the study during prepared childbirth classes. Recruitment began 4 months before data collection because the researchers had to wait until 6 weeks after delivery to gather data. The nurse

psychotherapist, who had her own clinical practice, was able to come to the hospital (a 2-hour drive for her) only 1 day a week to conduct the diagnostic interviews; this contributed to the time required to achieve the desired sample size.

Phase 4. Analytic Phase: 3 Months

Statistical tests were performed to determine a cut-off score on the PDSS above which mothers would be identified as having screened positive for postpartum depression. Data analysis also was undertaken to determine the accuracy of the PDSS in predicting diagnosed postpartum depression. During this phase, Beck met with the statisticians and instrument development consultant to interpret results.

Phase 5. Dissemination Phase: 18 Months

The researchers prepared a research report and submitted the manuscript to the journal *Nursing Research* for possible publication. Within 4 months it was accepted for publication, but it was “in press” (awaiting publication) for 14 months before being published. During this period, the authors presented their findings at regional and international conferences. The researchers also had to prepare a summary report for submission to the agency that funded the research.

Project Schedule for a Qualitative Study

Beck (2002) conducted a grounded theory study on mothering twins during the first year after delivery. Total time from start to finish was approximately 2 years.

Phase 1. Conceptual Phase: 3 Months

Beck became interested in mothers of multiples as a result of her quantitative studies on postpartum depression. The findings of these studies had revealed a much higher prevalence of postpartum depression among mothers of multiples than among those of singletons. Beck had never studied multiple births before, so she needed to review that literature carefully. Gaining entrée into the research site

(a hospital) did not take long, however, because she had previously conducted a study there and was known to the hospital’s gatekeepers. The key gatekeeper was a nurse who was in charge of the hospital’s support group for parents of multiples—a nurse with whom Beck had developed an excellent rapport in the previous study (the nurse was one of the childbirth educators who had helped recruit mothers for the postpartum depression study).

Phase 2. Design and Planning Phase: 4 Months

After reviewing the literature in the conceptual phase, a grounded theory design was selected. The researcher met with the nurse who headed the support group to plan the best approach for recruiting mothers of twins into the study. Plans were also made for the researcher to attend the monthly meetings of the support group. Once the design was finalized, the research proposal was submitted to and approved by both the hospital’s and university’s human subjects review committees.

Phase 3. Empirical/Analytic Phases 10 months

Data collection and data analysis phases occurred simultaneously in this grounded theory study. Beck attended the “parents of multiples” support group for 10 months. During that period, she conducted in-depth interviews with 16 mothers of twins in their homes, and analyzed her rich and extensive data. Beck’s analysis indicated that “life on hold” was the basic problem mothers of twins experienced during the first year of their twins’ lives. As mothers attempted to resume their own lives, they progressed through a four-stage process that Beck called “releasing the pause button.”

Phase 4 Dissemination Phase: 6+ Months

A manuscript was written describing this study and submitted for publication in a journal. The manuscript was published in 2002 in the journal *Qualitative Health Research*. In addition to disseminating the results as a journal article, Beck presented the findings at a regional nursing research conference.

SUMMARY POINTS

- A basic distinction in quantitative studies is between experimental and nonexperimental research. In **experimental research**, researchers actively intervene or introduce a treatment, whereas in **nonexperimental research**, researchers make observations of existing situations and characteristics without intervening.
- Qualitative research often is strongly rooted in research traditions that originate in the disciplines of anthropology, sociology, and psychology. Three such traditions have had strong influence on qualitative nursing research: grounded theory, phenomenology, and ethnography.
- **Grounded theory** seeks to describe and understand key social psychological and structural processes that occur in a social setting.
- **Phenomenology** is concerned with the lived experiences of humans and is an approach to thinking about what the life experiences of people are like.
- **Ethnography** provides a framework for studying the meanings, patterns, and experiences of a defined cultural group in a holistic fashion.
- The steps involved in conducting a quantitative study are fairly standard; researchers usually progress in a linear fashion from asking research questions to answering them.
- The main phases and steps in a quantitative study are the conceptual, planning, empirical, analytic, and dissemination phases.
- The **conceptual phase** involves (1) defining the problem to be studied; (2) doing a **literature review**; (3) engaging in **clinical fieldwork** for clinical studies; (4) developing a framework and conceptual definitions; and (5) formulating **hypotheses** to be tested.
- The **planning phase** entails (6) selecting a **research design**; (7) developing **intervention protocols** if the study is experimental; (8) specifying the **population**; (9) developing a **sampling plan**; (10) specifying methods to measure the research variables, through such approaches as **self-report**, **observation**, or the use of **biophysiologic methods**; (11) undertaking steps to safeguard the rights of subjects; and (12) finalizing the research plan, by conferring with colleagues, **pretesting** instruments, and, in some cases, conducting a **pilot study**.
- The **empirical phase** involves (13) collecting data; and (14) preparing data for analysis.
- The **analytic phase** involves (15) analyzing data through **statistical analysis**; and (16) interpreting the results.
- The **dissemination phase** entails (17) communicating the findings through the preparation of **research reports** that can be presented orally or published in written form, most often as **journal articles**; and (18) efforts to promote the use of the study evidence in nursing practice.
- The conduct of quantitative studies requires careful planning and organization. The preparation of a timetable with expected deadlines for task completion is recommended.
- The flow of activities in a qualitative study is more flexible and less linear.
- Qualitative researchers begin with a broad question regarding the phenomenon of interest, often focusing on a little-studied aspect.
- In the early phase of a qualitative study, researchers select a **site** and seek to **gain entrée** into it and into the specific **settings** in which data collection will occur. Gaining entrée typically involves enlisting the cooperation of **gatekeepers** within the site.
- The research design of qualitative studies is typically an **emergent design**. Once in the field, researchers select informants, collect data, and then analyze and interpret them in an iterative fashion; field experiences help in an ongoing fashion to shape the design of the study.
- Early analysis leads to refinements in sampling and data collection, until **saturation** (redundancy of information) is achieved.
- Qualitative researchers conclude by disseminating findings that can subsequently be used to (1) shape the direction of further studies (including more highly controlled quantitative studies); (2) guide the development of structured measuring tools for clinical and research purposes; and (3) shape nurses' perceptions of a problem or situa-

tion and their conceptualizations of potential solutions.

STUDY ACTIVITIES

Chapter 3 of the *Study Guide to Accompany Nursing Research: Principles and Methods, 7th edition*, offers various exercises and study suggestions for reinforcing concepts presented in this chapter. In addition, the following study questions can be addressed:

1. In quantitative studies, the same measurements are made of all subjects. What do you think researchers are trying to achieve by this degree of structure? Why might such structure not be appropriate in qualitative studies?
2. Which type of research do you think is easier to conduct—qualitative or quantitative research? Defend your response.
3. Suppose you were interested in studying fatigue in patients on chemotherapy. (This could involve either a quantitative or a qualitative approach.) Suggest some possible clinical fieldwork activities that would help you conceptualize the problem and develop a research strategy.

SUGGESTED READINGS

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