POLIT & BECK'S

ESSENTIALS OF Nursing Research

APPRAISING EVIDENCE FOR NURSING PRACTICE

Eleventh Edition

Jane Flanagan
Cheryl Tatano Beck

Wolters Kluwer

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TO

The memory of Denise F. Polit

1946–2021

From Denise's son:

Denise Polit was, above all, a force of nature. She was brilliant and kind, giving and strong, and passionate to the point of danger. She tasked herself with constant improvement so that she could lift up others. She would agonize for hours over a sentence, trying to find the perfect way to help others understand a difficult concept. As you read these pages, I hope that you can catch a glimpse of the passion she had for this material, for the desire she had to make a difference to those who dedicated themselves to trying to learn a difficult subject. She cared, deeply, about the book you're about to read, and I hope that, like myself and so many others, you will find her passion and dedication help guide you and make you a better version of yourself.

Denise is survived by her stepdaughters Norah, Lauren, and Alaine and their wonderful families, as well as by her son Alex, who still hopes that, one day, he will be worthy of all that she did for him.

Respectfully,

N. Alexander O'Hara

ABOUT THE AUTHORS

Jane Flanagan, PhD, RN, AHN-BC, ANP-BC, FNI, FNAP, FAAN

Jane Flanagan, PhD, RN, AHN-BC, ANP-BC, FNI, FNAP, FAAN, is an associate professor and department chairperson at the Connell School of Nursing and a nurse scientist at the Massachusetts General Hospital (MGH) Yvonne Munn Center for Nursing Research. She holds appointments as a member of the Board of Directors at the Sherrill House in Boston; volunteer faculty in the School of Nursing at the Health Science Center at the University of Tennessee Memphis; an associate clinical scientist at the Phyllis Cantor Center at the Dana Farber Cancer Institute.

Jane is the editor of the *International Journal of Nursing Knowledge* and serves on the editorial board of the *International Journal for Human Caring*. She is an appointed fellow in NANDA-I, the National Academy of Practice, and the American Academy of Nursing. Dr. Flanagan's work is focused on lifestyle interventions to improve the health of those caring for people with chronic health conditions with a focus on older adults.

Cheryl Tatano Beck, DNSc, CNM, FAAN

Cheryl Tatano Beck, DNSc, CNM, FAAN, is a distinguished professor at the University of Connecticut, School of Nursing, with a joint appointment in the Department of Obstetrics and Gynecology at the School of Medicine. She received her master's degree in maternal–newborn nursing from Yale University and her doctor of nursing science degree from Boston University. She has received numerous awards such as the Association of Women's Health, Obstetric and Neonatal Nurses' Distinguished Professional Service Award; Eastern Nursing Research Society's Distinguished Researcher Award; the Distinguished Alumna Award from Yale University School of Nursing; and the Marcé Medal from the International Marcé Society for Perinatal Mental Health in recognition of her program of research. She was inducted into the American Academy of Nursing, the Sigma Theta Tau International Nurse Researcher Hall of Fame, and Sigma Xi: The Scientific Research Honor Society.

Over the past 35 years, Cheryl has focused her research efforts on developing a research program on postpartum mood and anxiety disorders. Based on the findings from her series of qualitative studies, Cheryl developed the Postpartum Depression Screening Scale (PDSS). She is a prolific writer who has published over 200 journal articles. In addition to coauthoring award-winning research methods books with Denise Polit, Cheryl coauthored with Dr. Jeanne Driscoll *Postpartum Mood and Anxiety Disorders: A Clinician's Guide*, which received the 2006 *American Journal of Nursing* Book of the Year Award. In addition, Cheryl has published six other books: *Traumatic Childbirth*, *Routledge International Handbook of Qualitative Nursing Research*, *Developing a Program of Research in Nursing*, *Secondary Qualitative Analysis in the Health and Social Sciences*, *Introduction to Phenomenology: Focus on Methodology,* and *Using Grounded Theory Research Methods: A Guide for the Health and Social Sciences*.

PREFACE

Polit and Beck's Essentials of Nursing Research, 11th edition, helps students learn how to read and critically appraise research reports and to develop an appreciation of research as a path to enhancing nursing practice.

We continue to enjoy updating this book with important innovations in research methods and with examples of nurse researchers' use of emerging research strategies. Feedback from our loyal adopters has inspired several important changes to the content and organization of this book. We are convinced that these revisions introduce important improvements—while at the same time retaining many features that have made this book a classic best-selling textbook throughout the world. The 11th edition of this book and its online resources will make it easier and more satisfying for nurses to pursue a professional pathway that incorporates thoughtful appraisals of evidence.

LEGACY OF *ESSENTIALS OF NURSING RESEARCH*

This edition, like its predecessors, is focused on the art—and science—of critically appraising studies conducted by nurses and other health care professionals. The textbook offers guidance to students who are learning to assess research reports and to use research findings in practice.

Among the basic principles that helped to shape this and earlier editions of this book are the following:

1. Confidence in the idea that competence in doing and appraising research is critical to the nursing profession
2. A conviction that research inquiry is intellectually and professionally rewarding to nurses
3. An unswerving belief that learning about research methods need be neither intimidating nor dull

Consistent with these principles, we have tried to present research fundamentals in a way that both facilitates understanding and arouses curiosity and interest. We hope that, for some, it will arouse passion for the pursuit of research-based knowledge to guide practice.

NEW TO THIS EDITION

New Organization

A lot has happened in the world of research since the tenth edition. A particularly salient issue is patient (and other stakeholder) involvement in identifying important questions and translating research evidence into local settings. Relatedly, standard methods of appraising evidence for the **rigor** of study methods (which has been a focus of evidence-based practice, or EBP, initiatives) are being supplemented by a new emphasis on the **relevance** and

applicability of research evidence for individual patients or small groups of patients (as espoused by the movement for **practice-based evidence** and **patient-centered research**).

Enhanced Accessibility

To make this edition even more user-friendly than in the past, we have made a concerted effort to simplify the presentation of complex topics. For example, we reduced and simplified the coverage of statistical information. In addition, throughout the book we have used more straightforward, concise language.

New Content

Throughout this 11th edition, we have included up-to-date information on methodologic innovations that have arisen in nursing, medicine, and the social sciences since the previous edition was published. These changes reflect the 2022–2026 National Institute of Nursing Research (NINR) Strategic Plan and the American Association of Colleges of Nursing (AACN) Essentials. In addition to updating the book with new information on conventional research methods, all new recent examples of nursing studies are included. The many additions and changes are too numerous to describe here, so here are just some examples.

In Chapter 1, we highlight the research priorities articulated by the NINR and Sigma Theta Tau International, and other nursing organizations. We describe the nature of the 2022–2026 NINR strategic plan as a living document that provides a research lens for research concerned with health-related questions of concern to nurses. In Chapter 2, we include a schedule for a qualitative study to help students understand the amount of time needed to plan such a study. Chapter 4 discusses the updated American Nurses Association (2025) *Code of Ethics for Nurses* and its relevance to nursing research. Chapter 6, which focuses on retrieving and reviewing the research literature, now includes a section on artificial intelligence and its use in literature reviews. Also discussed in this chapter is the issue around predatory journals and guidance on avoiding them. Chapter 7 introduces the website Nursology.net and the purpose it serves in keeping nurses abreast on the development and use of nursing theory in research.

In Chapter 10, we include information on additional types of ethnography such as institutional ethnography, autoethnography, and netnography. Also described is situational analysis, which is a type of grounded theory. In Chapter 11, we added discussions of the think-aloud method, joint interviews, and differing perspectives on data saturation. We have added information about collecting data via the Internet such as data that are available directly on the Internet (e.g., blogs). Chapter 12 provides updated information and examples of mixed methods research. In Chapter 15, we include a discussion of artificial intelligence for qualitative data analysis and updated information on computer-assisted qualitative data analysis software. Qualitative content analysis is expanded to include a description of Krippendorff and Kyngäs et al.'s methods of both inductive and deductive content analysis. Also in Chapter 15, secondary qualitative data analysis and its different types are explained. In Chapter 16, positionality and the writing of positionality statements to help with qualitative researchers' reflexivity are addressed.

A Note About the Language Used in This Book

Wolters Kluwer recognizes that people have a diverse range of identities, and we are committed to using inclusive and nonbiased language in our content. In line with the principles of nursing, we strive not to define people by their diagnoses, but to recognize their personhood first and foremost, using as much as possible the language diverse groups use to define themselves, and including only information that is relevant to nursing care.

We strive to better address the unique perspectives, complex challenges, and lived experiences of diverse populations traditionally underrepresented in health literature. When describing or referencing populations discussed in research studies, we will adhere to the identities presented in those studies to maintain fidelity to the evidence presented by the study investigators. We follow best practices of language set forth by *the Publication Manual of the American Psychological Association, 7th edition*, but acknowledge that language evolves rapidly, and we will update the language used in future editions of this book as necessary.

THE TEXT

The content of this edition is as follows:

- **Part 1, Overview of Nursing Research and Its Role in Evidence-Based Practice**, introduces fundamental concepts in nursing research. Chapter 1 summarizes the background of nursing research, discusses the philosophical underpinnings of qualitative research versus quantitative research, describes major purposes of nursing research, and introduces key concepts relating to EBP. Chapter 2 introduces readers to key research terms and presents an overview of steps in the research process for both quantitative and qualitative studies. Chapter 3 focuses on research journal articles, explaining what they are and how to read them. Chapter 4 discusses ethics in nursing studies.
- **Part 2, Preliminary Steps in Quantitative and Qualitative Research**, further sets the stage for learning about the research process by considering aspects of a study's conceptualization. Chapter 5 focuses on the development of research questions and the formulation of research hypotheses. Chapter 6 discusses how to retrieve research evidence (especially in electronic bibliographic databases) and the role of research literature reviews. Chapter 7 presents information about theoretical and conceptual frameworks for nursing studies.
- **Part 3, Designs and Methods for Quantitative and Qualitative Nursing Research**, presents material on the design and conduct of all types of nursing studies. Chapter 8 describes fundamental design principles and discusses many specific aspects of quantitative research design, including efforts to enhance rigor. Chapter 9 introduces the topics of sampling and data collection in quantitative studies. Concepts relating to quality in measurements—reliability and validity—are introduced in this chapter. Chapter 10 describes the various qualitative research traditions that have contributed to the growth of constructivist inquiry and presents the basics of qualitative design. Chapter 11 covers sampling and data collection methods used in qualitative research, describing how these differ from approaches used in quantitative studies. Chapter 12 provides an overview of several distinctive types of research, with a special emphasis on mixed methods research. This chapter also discusses other special types of research such as surveys, comparative effectiveness studies, evaluation research, and outcomes research. Methods of undertaking quality improvement projects are also described.

- **Part 4, Analysis, Interpretation, and Application of Nursing Research**, presents tools for making sense of—and using—research data. Chapter 13 reviews methods of statistical analysis. The chapter assumes no prior instruction in statistics and focuses primarily on helping readers to understand why statistics are useful, what test might be appropriate in a given situation, and what statistical information in a research article means. Chapter 14 discusses approaches to interpreting statistical results, including interpretations linked to assessments of clinical significance. Chapter 15 discusses qualitative analysis, with an emphasis on ethnographic, phenomenologic, and grounded theory studies. In this edition, we offer an expanded discussion of the coding of qualitative data. Chapter 16 elaborates on criteria for appraising trustworthiness and integrity in qualitative studies. Chapter 17 describes systematic reviews, including how to understand and appraise meta-analyses and meta-syntheses—and how the GRADE system works in the context of systematic reviews. Finally, Chapter 18 describes key steps in EBP and also explains emerging ideas about how to improve EBP by striving for evidence that is more practice-based and patient-centered—that is, how to enhance the applicability of evidence to individual patients or well-defined subgroups of patients.
- **In the appendices, we offer two full-length research articles—**one quantitative and one qualitative—that students can read, analyze, and appraise. Some of the Critical Thinking Exercises in each chapter focus on these two studies. A **glossary** at the end of the book provides additional support for those needing to look up the meaning of a methodologic term.

FEATURES OF THE TEXT

We have retained many of the classic features that were successfully used in previous editions to assist those learning to read and apply evidence from nursing research:

- **Clear, User-Friendly Style.** Our writing style is easily digestible and nonintimidating—and we have worked even harder in this edition to write clearly and simply. Concepts are introduced carefully, difficult ideas are presented thoughtfully, and readers are assumed to have no prior knowledge of technical terms.
- **Critical Appraisal Guidelines.** Each chapter includes guidelines for conducting a critical appraisal of various aspects of a research report. The guidelines sections provide a list of questions that walk students through a study, drawing attention to aspects of the study that are amenable to evaluation by research consumers.
- **Research Examples and Critical Thinking Exercises.** Each chapter concludes with summaries of one or two research examples designed to highlight important points made in the chapter and to sharpen the reader's critical thinking skills. In addition, many research examples are used to illustrate key points in the text and to stimulate students' thinking about areas of research inquiry. We have chosen many international examples to communicate to students that nursing research is growing in importance worldwide. Some of the Critical Thinking Exercises focus on the full-length articles in the two appendices.
- **Tips for Students.** The textbook is filled with practical guidance and tips on how to translate the abstract notions of research methods into more concrete applications. In these tips, we have paid special attention to helping students *read* research reports, which are often daunting to those without specialized research training.
- **Graphics.** Colorful graphics—in the form of supportive tables, figures, and examples—reinforce the text and offer visual stimulation.

- **Chapter Objectives.** Learning objectives are identified in the chapter opener to focus students' attention on critical content.
- **Key Terms.** Each chapter opener includes a list of new research terms. In the text, new terms are defined in context (and bolded) when used for the first time; terms of lesser importance are italicized. Key terms are also defined in our glossary.
- **Bulleted Summary Points.** A succinct list of summary points that focus on salient chapter content is provided at the end of each chapter.

A COMPREHENSIVE PACKAGE FOR TEACHING AND LEARNING

To further facilitate teaching and learning, a carefully designed ancillary package has been developed to assist faculty and students.

Resources for Instructors

Tools to assist with teaching this text are available at http://thePoint.lww.com/PolitEssentials11e.

- NEW! **Test Generator Questions** include hundreds of multiple-choice questions that aid instructors in assessing their students' understanding of the chapter content.
- An **Image Bank** includes figures from the text.
- A **Sample Syllabus** is provided for a 14-week course.
- **Answers to Critical Thinking Exercises** are provided for selected questions related to the studies in the appendices of the textbook and others summarized throughout the chapters.
- **PowerPoint Slides** offer summaries of key points in each chapter for use in class presentations. At the end of each slide deck, five multiple-choice **Self-Test** questions relating to key concepts in the chapter are followed by answers to the questions. (A few chapters have two sets of **Self-Test** slides.) The aim of these slides is not to evaluate student performance. We recommend these slides be given to students for self-testing, or they can be used in the classroom with iClicker to assess students' grasp of important concepts. To enhance the likelihood that students will see the relevance of the concepts to clinical practice, all the questions are application-type questions. We hope instructors will use the slides to clarify any misunderstandings and, just as importantly, to reward students with immediate positive feedback about newly acquired skills.
- **AACN Essentials Map** shows how the book content integrates AACN Essentials of Baccalaureate Education for Professional Nursing Practice competencies.

A COMPREHENSIVE, DIGITAL, INTEGRATED COURSE SOLUTION: LIPPINCOTT® COURSEPOINT

The same trusted solution, innovation, and unmatched support that you have come to expect from *Lippincott CoursePoint* is now enhanced with more engaging learning tools and deeper analytics to help prepare students for practice. This powerfully integrated, digital learning solution combines learning tools, case studies, real-time data, and the most trusted nursing education content on the market to make curriculum-wide learning more efficient and to meet students where they're at in their learning. The solution connects learning to real-life

application by integrating content from *Polit and Beck's Essentials of Nursing Research* with video cases, interactive modules, and research journal articles. Ideal for active, case-based learning, this powerful solution helps students develop higher level cognitive skills and asks them to make decisions related to simple-to-complex scenarios. And now, it's easier than ever for instructors and students to use, giving them everything they need for course and curriculum success! To learn more about this solution, contact your local Wolters Kluwer representative.

Lippincott CoursePoint for Polit and Beck's: Essentials of Nursing Research, 11th edition includes the following:

- Leading Content in Context, with digital content from *Polit and Beck's Essentials of Nursing Research*, 11th edition, is embedded in our powerful tools, engaging students and encouraging interaction and learning on a deeper level.
  - The complete interactive e-book provides students with anytime, anywhere access on multiple devices.
  - Full online access to *Stedman's Medical Dictionary for the Health Professions and Nursing* ensures students work with the best medical dictionary available.
- Engaging course content provides a variety of learning tools to engage students of all learning styles.
- A more personalized learning approach gives students the content and tools they need at the moment they need it, giving them data for more focused remediation and helping to boost their confidence and competence.
- Powerful tools help students learn the critical thinking and clinical judgment skills to help them become practice-ready nurses, including the following:
  - Video Cases show how nursing research and EBP relate to real-life nursing practice. By watching the videos and completing related activities, students will flex their nursing research skills and build a spirit of inquiry.

  - Interactive Modules help students quickly identify what they do and do not understand, so they can study smartly. With exceptional instructional design that prompts students to

discover, reflect, synthesize, and apply, students actively learn. Remediation links to the digital textbook are integrated throughout.

- Unparalleled reporting provides in-depth dashboards with several data points to track student progress and help identify strengths and weaknesses.
- Unmatched support includes training coaches, product trainers, and nursing education consultants to help educators and students implement CoursePoint with ease.

CLOSING NOTE

It is our hope and expectation that the content, style, and organization of this 11th edition of *Polit and Beck's Essentials of Nursing Research* will be helpful to those students who want to become skillful, thoughtful readers of nursing studies and to those wishing to enhance their clinical performance based on research findings. We also hope that this textbook will help to develop an enthusiasm for the kinds of discoveries and knowledge that research can produce.

Jane Flanagan, PhD, RN, AHN-BC, ANP-BC, FNI, FNAP, FAAN

Cheryl Tatano Beck, DNSc, CNM, FAAN

USER'S GUIDE

Learning Objectives focus students' attention on critical content
Key Terms alert students to important terminology

10 Appraising Qualitative Designs and Approaches

Learning Objectives

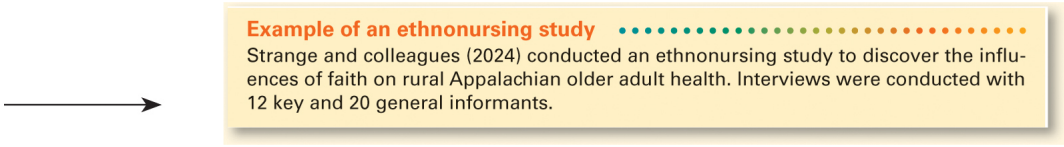
On completing this chapter, you will be able to:

- Discuss the rationale for an emergent design in qualitative research and describe qualitative design features
- Identify the major research traditions for qualitative research and describe the domain of inquiry of each
- Describe the main features and methods associated with ethnographic, phenomenologic, and grounded theory studies
- Describe key features of case studies, narrative analyses, and descriptive qualitative studies
- Discuss the goals and features of research with ideologic perspectives
- Define new terms in the chapter

Key Terms

- Autoethnography
- Basic social process (BSP)
- Bracketing
- Case study
- Constant comparison
- Constructivist grounded theory
- Core variable
- Critical ethnography
- Critical theory
- Descriptive phenomenology
- Descriptive qualitative study
- Emergent design
- Ethnonursing research
- Feminist research
- Grounded theory
- Hermeneutics
- Historical research
- Institutional ethnography
- Interpretive phenomenology
- Narrative analysis
- Netnography
- Participant observation
- Participatory action research (PAR)
- Reflexive journal
- Situational analysis

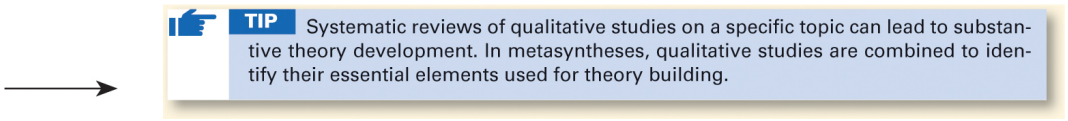
Examples help students apply content to real-life research



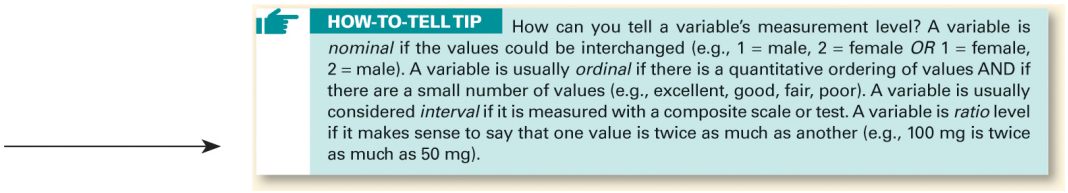
Example of an ethnonursing study

Strange and colleagues (2024) conducted an ethnonursing study to discover the influences of faith on rural Appalachian older adult health. Interviews were conducted with 12 key and 20 general informants.

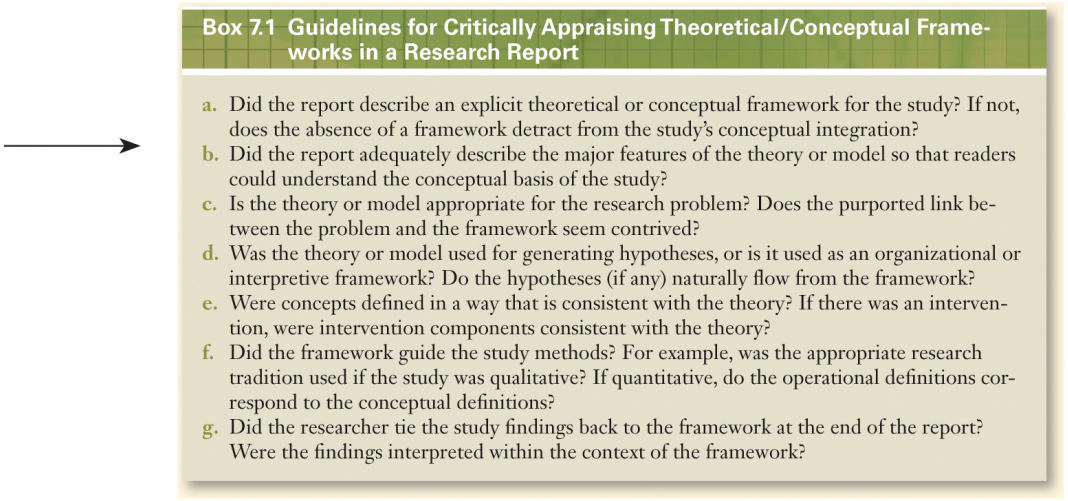
Tip boxes describe what is found in actual research articles



How-to-Tell Tip boxes explain confusing issues in actual research articles

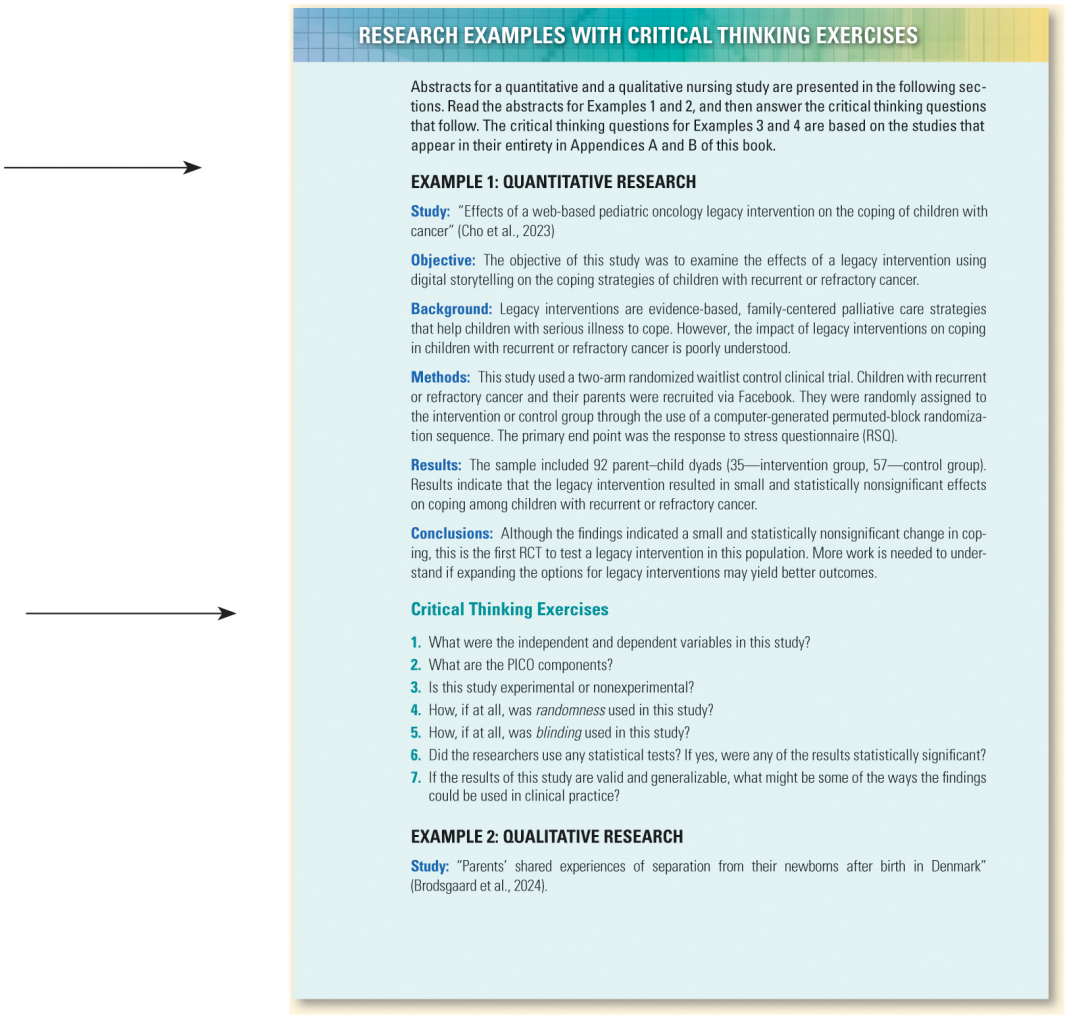


Critiquing Guidelines boxes lead students through key issues in a research article



Research Examples highlight critical points made in the chapter and sharpen critical thinking skills

Critical Thinking Exercises provide opportunities to practice critiquing actual research articles



RESEARCH EXAMPLES WITH CRITICAL THINKING EXERCISES

Abstracts for a quantitative and a qualitative nursing study are presented in the following sections. Read the abstracts for Examples 1 and 2, and then answer the critical thinking questions that follow. The critical thinking questions for Examples 3 and 4 are based on the studies that appear in their entirety in Appendices A and B of this book.

EXAMPLE 1: QUANTITATIVE RESEARCH

Study: "Effects of a web-based pediatric oncology legacy intervention on the coping of children with cancer" (Cho et al., 2023)

Objective: The objective of this study was to examine the effects of a legacy intervention using digital storytelling on the coping strategies of children with recurrent or refractory cancer.

Background: Legacy interventions are evidence-based, family-centered palliative care strategies that help children with serious illness to cope. However, the impact of legacy interventions on coping in children with recurrent or refractory cancer is poorly understood.

Methods: This study used a two-arm randomized waitlist control clinical trial. Children with recurrent or refractory cancer and their parents were recruited via Facebook. They were randomly assigned to the intervention or control group through the use of a computer-generated permuted-block randomization sequence. The primary end point was the response to stress questionnaire (RSQ).

Results: The sample included 92 parent–child dyads (35—intervention group, 57—control group). Results indicate that the legacy intervention resulted in small and statistically nonsignificant effects on coping among children with recurrent or refractory cancer.

Conclusions: Although the findings indicated a small and statistically nonsignificant change in coping, this is the first RCT to test a legacy intervention in this population. More work is needed to understand if expanding the options for legacy interventions may yield better outcomes.

Critical Thinking Exercises

1. What were the independent and dependent variables in this study?
2. What are the PICO components?
3. Is this study experimental or nonexperimental?
4. How, if at all, was *randomness* used in this study?
5. How, if at all, was *blinding* used in this study?
6. Did the researchers use any statistical tests? If yes, were any of the results statistically significant?
7. If the results of this study are valid and generalizable, what might be some of the ways the findings could be used in clinical practice?

EXAMPLE 2: QUALITATIVE RESEARCH

Study: "Parents' shared experiences of separation from their newborns after birth in Denmark" (Brodsgaard et al., 2024).

Summary Points review chapter content to ensure success

Summary Points

- High-quality research requires *conceptual integration*, one aspect of which is having a defensible theoretical rationale for the study.
- As classically defined, a **theory** consists of two or more concepts and propositions that form a logically interrelated system, providing a mechanism for deducing hypotheses. **Descriptive theory** thoroughly describes a phenomenon.
- *Grand theories* (or *macrotheories*) attempt to describe or explain large segments of the human experience. **Middle-range theories** are specific to certain phenomena; examples include Pender's HPM and Mishel's Uncertainty in Illness Theory.
- Concepts are also the basic elements in **conceptual models**, but concepts are not linked in a logically ordered, deductive system.
- In research, the goals of theories and models are to make findings meaningful, to integrate knowledge into coherent systems, to stimulate new research, and to explain phenomena and relationships among them.
- **Schematic models** (or **conceptual maps**) are graphic representations of phenomena and their interrelationships using symbols or diagrams and a minimal use of words.
- A **framework** is the conceptual underpinning of a study, including an overall rationale and conceptual definitions of key concepts. In qualitative studies, the framework often springs from distinct research traditions.
- Several conceptual models of nursing have been used in nursing research. The concepts central to models of nursing are *human beings*, *environment*, *health*, and *nursing*. An example of a model of nursing used by nurse researchers is RAM. Nonnursing models are also used by nurse researchers (e.g., Bandura's Social Cognitive Theory).
- In some qualitative research traditions (e.g., phenomenology), the researcher strives to suspend previously held *substantive theories* of the specific phenomena under study, but each tradition has rich theoretical underpinnings.
- Some qualitative researchers seek to develop *grounded theories*, data-driven explanations to account for phenomena under study through inductive processes.
- In the classical use of theory, researchers test hypotheses deduced from an existing theory. An emerging trend is the testing of theory-based interventions.
- In both qualitative and quantitative studies, researchers sometimes use a theory or model as an organizing framework or as an interpretive tool.

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Acknowledgments

We must start this 11th edition of the book by acknowledging the tremendous loss of Dr. Denise Polit not only for her family but also for the discipline of nursing. Dr. Polit was not a nurse, but how extremely fortunate our discipline has been to have had her devote her career to supporting the learning, knowledge, and professional development of nurses, specifically in the field of nursing research. Since Denise wrote the first edition of this book in 1985, there has been no other individual who we believe has had more of an impact on the development of generations of nurses in regard to nursing research than Dr. Denise Polit. Denise would often call this book "her baby," which she tenderly cared for throughout each of the first 10 editions. She will be deeply missed!

This 11th edition, like the previous editions, depended on the contributions of dozens of people. Many faculty and students who have used the text have made invaluable suggestions for its improvement, and to all of you we are very grateful. In addition to all those who assisted us over the past 40 plus years with the earlier editions, the following individuals deserve special mention.

We would like to acknowledge the comments of reviewers of the previous edition of this book, anonymous to us initially, whose feedback influenced our revisions. We would like to thank Dr. Carrie Morgan Eaton at the University of Connecticut who provided regular feedback and updates to computer-assisted qualitative data analysis software.

We also extend our thanks to those who helped to turn the manuscript into a finished product. The staff at Wolters Kluwer has been of great assistance to us over the years. We are indebted to Joyce Berendes, Rachel Lucke, Janet Jayne, and all the others behind the scenes for their fine contributions.

Finally, we thank our family and friends. Our husbands, Richard Naegle and Chuck Beck, and Cheryl's children, Lisa and Curt, have become accustomed to our demanding schedules, but we recognize that their support involves a lot of patience and many sacrifices.

Contents

Part 1 Overview of Nursing Research and Its Role in Evidence-Based Practice

1 Introducing Nursing Research for Evidence-Based Practice

Learning Objectives

On completing this chapter, you will be able to:

- Describe why research is important in nursing and discuss the importance of evidence-based practice
- Describe broad historical trends and future directions in nursing research
- Describe alternative sources of evidence for nursing practice
- Describe major characteristics of the positivist and constructivist paradigm and discuss similarities and differences between the traditional scientific method (quantitative research) and constructivist methods (qualitative research)
- Identify several purposes of qualitative and quantitative nursing research
- Understand sources of information for evidence-based practice
- Describe evidence hierarchies and level of evidence scales
- Identify a well-worded clinical question for evidence-based practice
- Define new terms in the chapter

Key Terms

- Applicability
- Assumption
- Cause-probing research
- Clinical nursing research
- Clinical significance
- Constructivist paradigm
- Empirical evidence

- Evidence-based practice (EBP)
- Evidence hierarchy
- Generalizability
- Journal club
- Level of evidence (LOE)
- Meta-aggregation
- Meta-analysis
- Metasynthesis
- Mixed methods research
- Mixed studies review
- Nursing research
- Paradigm
- Patient centeredness
- PICO format
- Positivist paradigm
- Primary studies
- Qualitative research
- Quantitative research
- Research
- Research methods
- Scientific method
- Systematic review

NURSING RESEARCH IN PERSPECTIVE

We know that most readers are not reading this book because they plan to become nurse researchers. Yet, we are confident that many of you *will* participate in research-related activities during your careers, and virtually all of you will be expected to be research-savvy at a basic level. We hope that you will come to see the value of nursing research and will be inspired by the efforts of the thousands of nurse researchers now working worldwide to improve patient care. You are embarking on a lifelong voyage in which research will play a role. We hope to help you enjoy the journey.

What Is Nursing Research?

Research is systematic inquiry that relies on disciplined methods to answer questions and solve problems. The ultimate goal of research is to gain knowledge that can benefit many people. **Nursing research** is systematic inquiry designed to develop evidence about issues of importance to nurses and their patients. Nurses undertake research to address problems relating to nursing education and nursing administration, but in this book, we emphasize **clinical nursing research**—that is, research designed to guide nursing practice and to improve the health and quality of life of nurses' patients. Clinical nursing research typically begins with questions stemming from practice problems—problems you may have already encountered.

Examples of nursing research questions

- What are the trajectories of spiritual distress and religious involvement among patients suffering from cancer during chemotherapy? (Martins et al., 2024)
- What factors are associated with the intention to obtain the HPV vaccine among those who have never been vaccinated? (Allen et al., 2024)

TIP

You may think that research is too abstract to have a bearing on patient care. But nursing research focuses on *real* people with *real* problems, and studying those problems offers opportunities to address them through improvements to nursing care.

The Importance of Research to Evidence-Based Nursing

Nursing has experienced profound changes in the past few decades. Nurses are increasingly expected to understand research and to base their practice on evidence from research—that is, to adopt an **evidence-based practice (EBP)**. EBP involves using the best evidence in making patient care decisions, and such evidence typically comes from research conducted by nurses and other health care professionals. Nurse leaders recognize the need to base specific nursing decisions on evidence indicating that the decisions are clinically appropriate, resulting in positive patient outcomes, as well as cost-effective. We will discuss EBP in greater detail later in this chapter.

In some countries, research plays a role in nursing credentialing and status. For example, the American Nurses Credentialing Center—an arm of the American Nurses Association—has developed a Magnet Recognition Program to recognize health care organizations that provide high-quality nursing care. To achieve Magnet status, practice environments must demonstrate a sustained commitment to EBP; the 2023 Magnet application manual continues to strengthen evidence-based requirements. Changes to nursing practice are happening every day because of EBP efforts.

Example of evidence-based practice

Many clinical practice changes reflect the impact of research. For example, "kangaroo care," the holding of diaper-clad preterm infants skin to skin, chest to chest by parents, is now widely practiced in neonatal intensive care units (NICUs), but before 2000, only a minority of NICUs offered kangaroo care options. Expanded adoption of this practice resulted from mounting evidence that early skin-to-skin contact has clinical benefits without negative side effects. Research on kangaroo care continues to reinforce the benefits of this care for infants under a variety of circumstances (Çaka et al., 2023; Pathak et al., 2023; Zengin et al., 2023; Zhao et al., 2022).

Roles of Nurses in Research

Nurses are likely to engage in one or more activities along a continuum of research participation. At one end of the continuum are *consumers of nursing research*—nurses who read research reports to keep up-to-date on findings that may affect their practice. EBP depends on well-informed nursing research consumers.

At the other end of the continuum are the *producers of nursing research*—nurses who actively undertake studies. Research is increasingly being conducted by practicing nurses who want to find what works best for their patients.

Between these two end points on the continuum lie a variety of research activities in which nurses engage. Even if you never carry out a study, you may do one of the following:

1. Contribute an idea for a study.
2. Gather information from those taking part in a study.
3. Advise patients about participating in a study.
4. Search for research evidence to address a practice problem.
5. Discuss the implications of a study in a **journal club** in your practice setting, which involves meetings (in groups or online) to discuss research articles.

In all these possible research-related activities, nurses who have some research skills are better able than those without them to make a contribution to nursing and to EBP.

Nursing Research: Past and Present

Florence Nightingale is credited with being the first nurse to use research techniques. Based on her skillful analysis of factors affecting soldier mortality and morbidity during the Crimean War (1854 to 1856), she was successful in bringing about changes in nursing care and public health. After Nightingale's work, however, research disappeared from the nursing literature until the early 1900s, but most studies at that time concerned nurses' education.

In the 1950s, research by nurses began to accelerate. Increased numbers of nurses with advanced degrees, the growth in research funding, and the establishment of the journal *Nursing Research* helped to propel nursing research at the mid-20th century. During the 1960s, practice-oriented research began to emerge, and research-oriented journals started publication in several countries. During the 1970s, there was a change in research emphasis from areas such as teaching and nurses' characteristics to improvements in patient care. Nurses also began to pay attention to the utilization of research findings in nursing practice.

In 1986, the National Center for Nursing Research (NCNR) was established at the National Institutes of Health (NIH) in the United States. A key purpose of NCNR was to promote and financially support research relating to patient care. In 1993, nursing research was strengthened when NCNR was promoted to full institute status within the NIH: the *National Institute of Nursing Research* (NINR) was created. NINR helped put nursing research into the mainstream of activities enjoyed by other health disciplines. Funding opportunities for nursing research also expanded in other countries. The 1990s witnessed the birth of several more journals for nurse researchers, and the growth of journals focused on nursing research continues to expand. Additionally, as members of interdisciplinary research teams, more nurses are publishing in health science journals with colleagues from other fields.

Current and Future Directions for Nursing Research

Nursing research continues to develop at a rapid pace as research is increasingly embedded into the nurse's professional role. In 1986, NCNR had a budget of $16 million, whereas NINR's funding request for fiscal year 2024 was $197.7 million. Among the trends we foresee for the near future are the following:

- *Continued focus on EBP*. Nurses' use of research findings in their practice will continue to be encouraged. This means that improvements will be needed in nurses' skills in locating, understanding, critically appraising, and using relevant study results.
- *Ongoing growth of research syntheses*. Systematic reviews, which are a cornerstone of EBP, rigorously integrate research information on a topic so that conclusions about the state of evidence can be reached.

- *Increased emphasis on patient centeredness*. **Patient centeredness** has become a central concern in health care and in research. Efforts are increasing to ensure that research is relevant to patients and that patients play a role in setting research priorities.
- *Relatedly, greater interest in the **applicability** of research*. More attention is being paid to figuring out how study results can be applied to individual patients or subgroups of patients. A limitation of the current EBP model is that evidence typically is based on the *average effects* of health care interventions implemented under ideal circumstances.
- *Expanded local research and quality improvement efforts in health care settings*. Small studies designed to solve local problems are increasing. This trend will be reinforced as more hospitals apply for (and are recertified for) Magnet status in the United States and other countries. Mechanisms are being developed to ensure that evidence from local projects becomes available to others facing similar problems.
- *Increased focus on health disparities*. Health disparities continue to be a crucially important concern, and this in turn has raised consciousness about the cultural sensitivity of health interventions. Research (and health care more generally) must be sensitive to the beliefs, life experiences, barriers, and values of racially, culturally, and linguistically diverse populations.
- *Growing interest in defining and ascertaining **clinical significance***. Research findings increasingly must meet the test of being clinically significant, and patients have taken center stage in efforts to define clinical significance.
- *Nurse researchers contributing to interdisciplinary team science*. Nurses have a unique focus on people's health experiences. As nurses become more adept at articulating the distinct perspective of the discipline and in the conduct of nursing research, they increasingly serve as valuable members of interdisciplinary research teams.

What are nurse researchers likely to be studying in the future? Although there is tremendous diversity in research interests, research priorities have been articulated by NINR, Sigma Theta Tau International, and other nursing organizations. For example, NINR's 2022 to 2026 strategic plan is a living document that provides a research lens for research concerned with health-related questions aimed at achieving NINR's mission (NINR, 2022). The research lens is as follows:

- Health equity
- Social determinants of health
- Population and community health
- Prevention and health promotion
- Systems and models of care

KNOWLEDGE SOURCES FOR NURSING PRACTICE

Nurses make clinical decisions based on a large repertoire of knowledge. As a nursing student, you are gaining skills in nursing practice from your instructors, textbooks, and clinical placements. When you become a registered nurse (RN), you will continue to learn from other nurses and health care professionals. Because evidence is constantly evolving, learning about best-practice nursing will be an ongoing quest throughout your career.

Some of what you have learned thus far is based on systematic research, but much of it is not. Where does knowledge for nursing practice come from? Until fairly recently, knowledge was based primarily on clinical experience, trial and error, tradition, and expert opinion. These alternative sources of knowledge are different from research-based information.

Tradition and "Experts"

Some nursing decisions are based on untested traditions and "unit culture" rather than on sound evidence. Another common source of knowledge is an authority, a person with specialized expertise. Reliance on experts (such as nursing faculty, mentors, or textbook authors) is unavoidable. Experts, however, are not infallible—particularly if their expertise is based primarily on personal experience or outdated information; yet, their knowledge is often unchallenged.

TIP

The consequences of *not* using research-based evidence can be devastating. For example, from 1956 through the 1980s, Dr. Benjamin Spock published several editions of *Baby and Child Care*, a parental guide that sold over 19 million copies worldwide. Dr. Spock wrote the following advice: "I think it is preferable to accustom a baby to sleeping on his stomach from the beginning if he is willing" (Spock, 1979, p. 164). Research has demonstrated that this sleeping position is associated with a heightened risk of sudden unexplained infant death (SUID) (formerly known as sudden infant death syndrome [SIDS]). In their systematic review of the evidence, Gilbert and colleagues (2005) wrote, "Advice to put infants to sleep on the front for nearly half a century was contrary to evidence from 1970 that this was likely to be harmful" (p. 874). They estimated that if medical advice had been guided by research evidence, over 60,000 infant deaths might have been prevented. An updated systematic review continues to support the supine sleeping position for infants to reduce the risk of SUID (Priyadarshi et al., 2022).

Clinical Experience and Trial and Error

Clinical experience is a functional source of knowledge—indeed, it is a component of the EBP model. Yet, personal experience has limitations as a source of evidence for practice because each nurse's experience is too narrow to be generally useful, and personal experiences are often colored by biases. Trial and error—alternatives tried successively until a solution to a problem is found—can be practical, but the method tends to be haphazard and solutions may be idiosyncratic.

Disciplined Research

Disciplined research is considered the best method of acquiring reliable knowledge. Evidence-based health care compels nurses to base their clinical practice to the extent possible on rigorous research-based findings rather than on tradition, authority, or personal experience—although nursing will always remain a rich blend of art and science.

PARADIGMS AND METHODS FOR NURSING RESEARCH

The questions that nurse researchers ask, and the strategies they use to answer their questions, spring from a researcher's view of how the world "works." In research parlance, a **paradigm** is a worldview, a general

perspective on the world's complexities.

Disciplined inquiry in nursing has been conducted mainly within two paradigms. The paradigm that dominated nursing research for decades is called the **positivist paradigm**. Positivism, rooted in 19th century thought, is a reflection of a broad cultural movement that emphasizes the rational and scientific. The **constructivist paradigm** (sometimes called the *naturalistic paradigm*) began as a countermovement to positivism and is a major alternative system for conducting research in nursing.

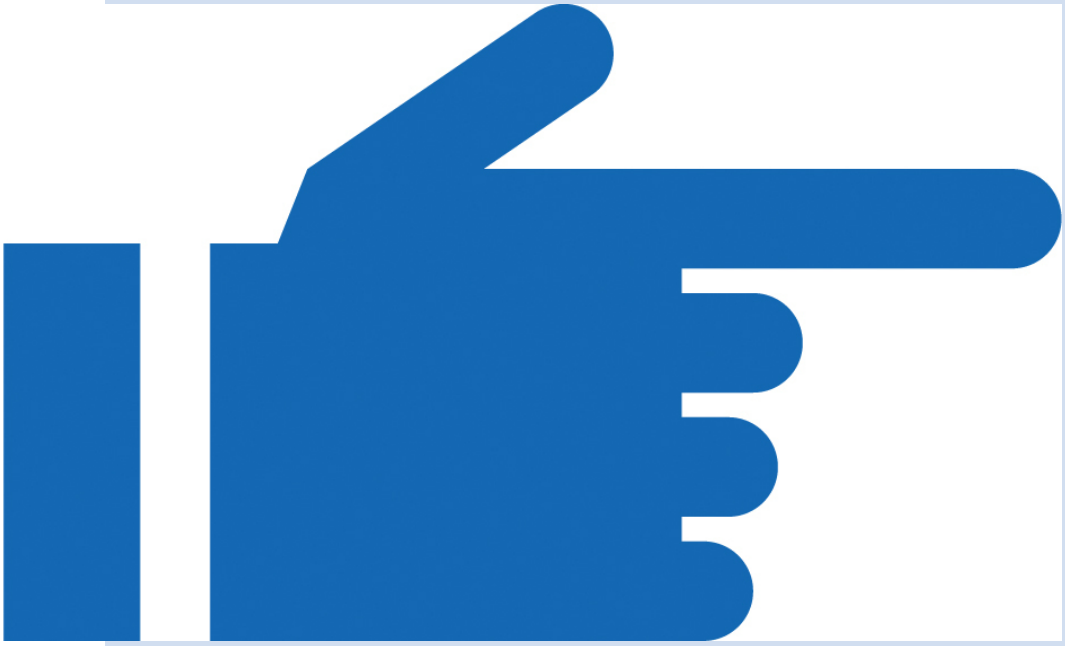
This section describes the two paradigms and outlines the research methods associated with them. **Research methods** are the techniques researchers use to structure a study and to gather and analyze relevant information. The two paradigms are associated with different methods of developing evidence.

The Positivist Paradigm

An **assumption** is a principle that is believed to be true without verification. Paradigms are associated with a set of assumptions that have implications for the kinds of research questions that researchers ask and the methods they use to answer them.

Worldview of the Positivist Paradigm

A fundamental assumption of positivists is that there is a reality *out there* that can be studied and known. Positivists assume that nature is ordered and regular, and that a reality exists independent of human observation. The assumption of *determinism* refers to the positivists' belief that phenomena are not haphazard but rather have antecedent causes. Within the positivist paradigm, research activity is often aimed at understanding the underlying causes of natural phenomena. Because they believe in a factual reality, positivists prize objectivity. Their approach involves the use of orderly, disciplined procedures with tight controls over the research situation to test hunches about the nature of the phenomena being studied and the relationships among them.



TIP

What do we mean by *phenomena*? In a research context, *phenomena* are those things in which researchers are interested—such as a health event (e.g., a patient fall), a health outcome (e.g., pain), or a health experience (e.g., living with chronic pain).

Strict positivist thinking has been challenged. *Postpositivists* recognize the impossibility of total objectivity, but they view objectivity as a goal and strive to be as unbiased as possible. Postpositivists also

appreciate the barriers to knowing reality with certainty and therefore seek *probabilistic* evidence—i.e., learning what the true state of a phenomenon *probably* is. This modified positivist position remains a dominant force in nursing research. For the sake of simplicity, we refer to it as positivism.

The Scientific Method and Quantitative Research

The traditional, positivist **scientific method** involves using orderly procedures to gather primarily quantitative information. Quantitative researchers typically move in a systematic fashion from the definition of a problem to a solution. By *systematic*, we mean that investigators progress through a series of steps, according to a prespecified plan. Quantitative researchers use methods designed to control the research situation with the goal of minimizing *bias* and maximizing validity.

Quantitative researchers gather **empirical evidence**—evidence that is rooted in objective reality and gathered through the senses rather than through personal beliefs. Evidence for a study using the traditional scientific method is gathered systematically, using instruments to collect needed information. Usually, the information is *quantitative*—numeric information that results from some type of formal measurement and that is analyzed statistically. Quantitative researchers strive to go beyond the specifics of a situation; the ability to generalize research findings to individuals who did not take part in the study (referred to as **generalizability**) is an important goal.

The traditional scientific method has been used productively by nurse researchers studying a wide range of questions. Yet, there are important limitations. For example, quantitative researchers must deal with problems of *measurement*. To study a phenomenon, scientists must measure it, that is, attach numeric values that express quantity. For example, if the phenomenon of interest were patient stress, researchers would want to assess if stress was high or low, or higher under certain conditions. Physiologic phenomena like blood pressure and temperature can be measured with accuracy and precision, but the same cannot be said of psychological phenomena, such as stress, resilience, or pain.

Nursing research focuses on human beings who are inherently complicated and diverse. Quantitative studies typically focus on only a few concepts (e.g., weight gain, depression). Complexities tend to be controlled and, if possible, eliminated rather than studied directly, and this narrowness of focus can sometimes obscure insights. **Quantitative research** within the positivist paradigm has been criticized for failing to capture the full breadth of human experience.

Example of a quantitative study

Tung et al. (2022) conducted a randomized clinical trial aimed at examining the effects of an exercise program on functional fitness and the ability to perform the activities of daily living (ADL) in 114 older adults with probable sarcopenia in 12 long-term care facilities. The findings suggested that functional fitness and ADL in the intervention group were significantly improved while the control group experienced a significant decline.

TIP

Students often find quantitative studies more intimidating than qualitative ones. Try not to worry too much about the jargon at first—remember that each study has a *story* to tell, and grasping the main point of the story is what is initially important.

The Constructivist Paradigm

This section describes the assumptions and research methods associated with the constructivist paradigm.

Worldview of the Constructivist Paradigm

For the naturalistic inquirer, reality is not a fixed entity but rather a construction of the people participating in the research; reality exists within a context, and many constructions are possible. Constructivists take the position of relativism: If there are multiple interpretations of reality that exist in people's minds, then there is no process by which the ultimate truth or falsity of the constructions can be determined.

The constructivist paradigm assumes that knowledge is maximized when the distance between the inquirer and participants in the study is minimized. The voices and interpretations of those under study are crucial to understanding the phenomenon of interest, and subjective interactions are the best way to access them. Findings from a constructivist inquiry are the product of the interaction between the inquirer and the participants.

Constructivist Methods and Qualitative Research

Researchers in the constructivist versus the positivist paradigm rely on different research methods (Table 1.1). Researchers in constructivist traditions emphasize the inherent complexity of humans, their ability to shape their own experiences, and the idea that truth is a composite of realities. Consequently, constructivist studies are focused on understanding the human experience as it is lived, through the careful collection and analysis of *qualitative* materials that are narrative and subjective.

TABLE 1.1 Key Methodologic Differences in the Positivist and Constructivist Paradigms

Positivist Paradigm (Quantitative Research)	Constructivist Paradigm (Qualitative Research)
Deductive processes—hypothesis testing	Inductive processes—hypothesis generation

Positivist Paradigm (Quantitative Research)	Constructivist Paradigm (Qualitative Research)
Emphasis on discrete, specific concepts	Emphasis on the entirety of a phenomenon; holistic
Focus on the objective and quantifiable	Focus on the subjective and nonquantifiable
Outsider knowledge—researcher is external, separate	Insider knowledge—researcher is part of the process
Fixed, prespecified research design	Flexible, emergent research design
Controls over context	Context bound
Large, representative samples	Small, information-rich samples
Measured (quantitative) information	Narrative (unstructured) information
Statistical analysis	Qualitative analysis
Seeks generalizations	Seeks in-depth understanding

Qualitative researchers believe that a major limitation of the traditional scientific method is that it is *reductionist*—that is, it reduces human experience to the few concepts under investigation, and those concepts are defined in advance rather than emerging from the experiences of those under study. Constructivist researchers tend to emphasize the dynamic, holistic, and individual aspects of human life and try to capture those aspects in their entirety, within the context of those who are experiencing them.

Flexible, evolving procedures are used to capitalize on findings that emerge during the study, which typically is undertaken in naturalistic settings. The collection and analysis of information usually progress concurrently. As researchers sift through information, insights are gained, new questions emerge, and further evidence is sought to confirm the insights. Through an inductive process (going from specifics to the general), researchers integrate information to develop a theory or description that illuminates the phenomena under observation.

Constructivist studies yield rich, in-depth information that can potentially clarify the dimensions of a complicated phenomenon. The findings are grounded in the real-life experiences of people with firsthand knowledge of a phenomenon. Nevertheless, the approach has several limitations. Human beings are used directly as the instrument through which information is gathered, and humans are highly intelligent—but fallible—tools.

Another issue involves the subjectivity of constructivist inquiry, which can raise concerns about the idiosyncratic nature of the judgments. Would two constructivist researchers studying the same phenomenon in similar settings arrive at comparable conclusions? The problem is exacerbated by the fact that most constructivist studies involve a small number of participants. Thus, the generalizability of findings from constructivist inquiries is a potential concern.

Example of a qualitative study

Brooks and Savitch (2022) conducted qualitative interviews to explore the experience and motivations of six people living with dementia who were blogging about what this experience was like for them.

TIP

Researchers seldom discuss or even mention the underlying paradigm of their studies in their reports. The paradigm shapes the inquiry without being explicitly referenced.

Multiple Paradigms and Nursing Research

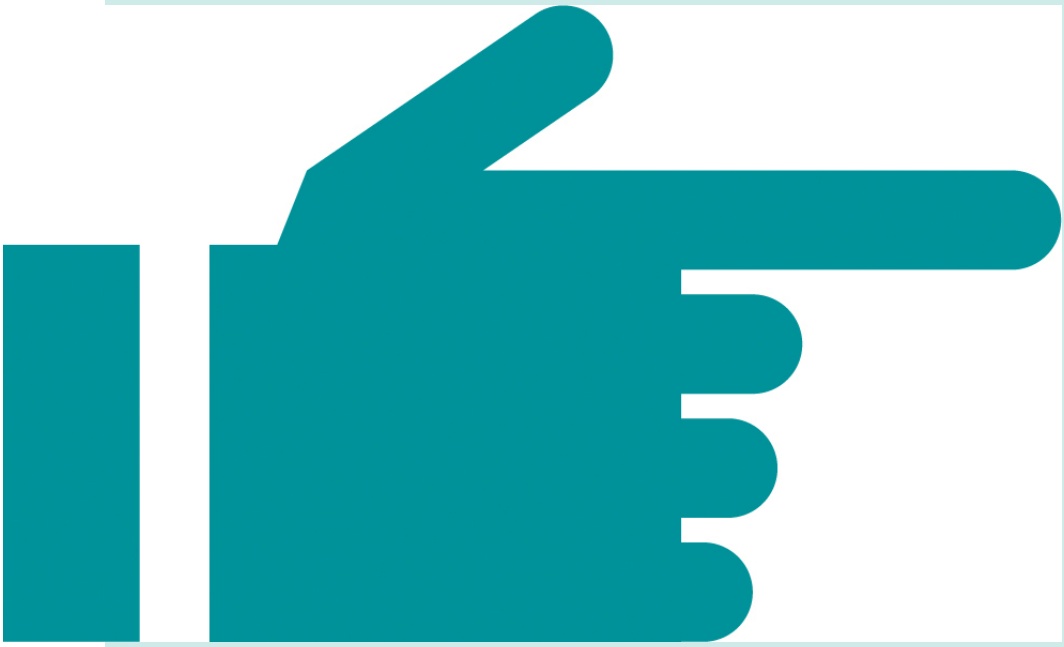
Paradigms are lenses that help to sharpen researchers' focus on phenomena of interest. The availability of alternative paradigms for studying nursing problems can maximize the breadth of new evidence for practice. Nursing is enriched by the use of diverse methods—methods that are often complementary in their strengths and limitations.

We have emphasized differences between the two paradigms and associated methods so that distinctions would be easy to understand. It is equally important, however, to note that the two paradigms have many features in common, some of which are mentioned here:

- *Ultimate goals*. The ultimate aim of disciplined research, regardless of paradigm, is to answer questions and solve problems. All researchers seek to capture the truth with regard to the phenomena in which they are interested.
- *External evidence*. The word *empiricism* is often associated with the scientific method, but qualitative researchers also gather and analyze evidence gathered empirically, that is, through their senses.
- *Reliance on human cooperation*. Human cooperation is essential in both qualitative and quantitative research. To understand people's characteristics and experiences, researchers must persuade them to participate in the study and to speak candidly.
- *Ethical constraints*. Regardless of paradigms or methods, research with human beings is guided by ethical principles that sometimes conflict with research goals.
- *Fallibility*. Virtually all studies have limitations. The fallibility of any single study makes it important to understand and critically appraise researchers' methods when evaluating evidence quality.

Thus, despite philosophic and methodologic differences, researchers using the traditional scientific or constructivist methods face many similar challenges. The selection of an appropriate method depends not only on researchers' worldview but also on the research question. If a researcher asks, "What are the effects of cryotherapy on oral mucositis in patients undergoing chemotherapy?" the researcher needs to examine effects through a careful quantitative assessment of patient outcomes. On the other hand, if a researcher asks, "What is the process by which parents learn to cope with the death of a child?" the researcher would be hard pressed to quantify the process. Personal worldviews of researchers help to shape the questions they ask.

In reading about the alternative paradigms, you likely were more attracted to one of the two paradigms—the one that corresponds to your view of the world. It is important, however, to learn about and value both approaches to disciplined inquiry and to recognize their respective strengths and limitations. This book will hopefully help you to become *methodologically bilingual*—a skill that is increasingly important because many nurse researchers are now undertaking **mixed methods research** that involves the collection and analysis of both qualitative and quantitative data in a single study, as we discuss in Chapter 12.



HOW-TO-TELL TIP

How can you quickly tell if a study is qualitative or quantitative? As you progress through this book, you should be able to identify most studies as qualitative versus quantitative based on terms in the introductory summary or on the report title. At this point, though, it may be easiest to distinguish the two types of studies based on how many *numbers* appear in the article, especially in tables. Qualitative studies may have no tables with quantitative information, or only one numeric table describing participants' characteristics (e.g., the percentage who were male or female). Quantitative studies typically have several tables with numbers and statistical information. Qualitative studies often have "word tables" or diagrams and figures illustrating processes inferred from the narrative information gathered.

THE PURPOSES OF NURSING RESEARCH

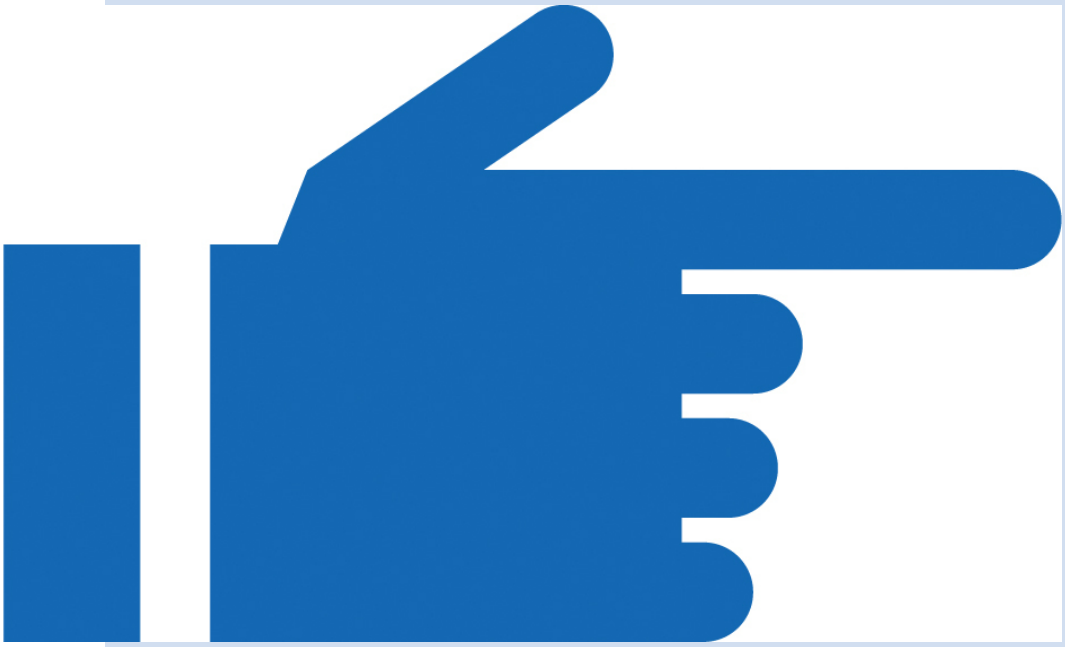
Why do nurses do research? Several systems have been devised to classify research goals.

Research for Varying Levels of Explanation

One classification system concerns the extent to which studies provide explanatory information. The descriptive/explanatory continuum includes studies whose purposes are identification, description, exploration, prediction/control, and explanation of health-related phenomena. For each purpose, various types of question are addressed—some more amenable to qualitative than to quantitative inquiry, and vice versa. Here are some examples of questions researchers ask related to these purposes, with a designation of whether the inquiry would most likely be quantitative (Quan) or qualitative (Qual):

- *Identification*: What is this phenomenon? What is its name? (Qual)

- *Description*: How prevalent is the phenomenon? (Quan) What are the dimensions or characteristics of the phenomenon? (Qual)
- *Exploration*: What factors are related to the phenomenon? (Quan) What is the full nature of the phenomenon? (Qual)
- *Prediction/control*: If phenomenon X occurs, will phenomenon Y follow? Can the phenomenon be prevented? (Quan)
- *Explanation*: What is the underlying cause of the phenomenon? (Quan) What does the phenomenon mean? (Qual)



Specific study goals can range along a descriptive/explanatory continuum, but a fundamental distinction is between studies whose primary intent is to *describe* phenomena and those that are cause-probing—i.e., designed to illuminate the underlying causes of phenomena. Questions in the prediction/control and explanation categories are used in **cause-probing research**.

Research Purposes Linked to Evidence-Based Practice

Another system for classifying studies has emerged in efforts to communicate EBP-related purposes (Melnyk & Fineout-Overholt, 2023). In this classification scheme, most purposes can best be addressed with quantitative research.

Therapy/Intervention

Therapy/intervention questions are addressed by health care researchers who want to learn the benefits of specific actions, treatments, products, or processes. Studies with a therapy purpose seek to identify effective treatments for ameliorating or preventing health problems. Such studies range from evaluations of highly specific treatments (e.g., comparing two types of cooling blankets for febrile patients) to complex multicomponent interventions designed to result in behavioral changes (e.g., testing a nurse-led smoking cessation intervention). Therapy questions are foundational for evidence-based decision-making; evidence for changes to nursing practice comes from studies that have tested the effects of intervening in a particular way.

Example of a study aimed at therapy

Does an evidence-based heart failure education program result in increased adherence to the treatment plan and decreased hospital readmissions in patients with heart failure after discharge posthospitalization (Rizzuto et al., 2022)?

Diagnosis and Assessment

Many nursing studies concern the rigorous development and testing of formal instruments to screen, diagnose, and assess patients and to measure clinical outcomes—that is, they address diagnosis/assessment questions. High-quality instruments with documented accuracy are essential for clinical practice and for research.

Example of a study aimed at diagnosis/assessment

Mendes and colleagues (2024) conducted a case-control study in 155 high-risk pregnant people to determine the clinical validity of the nursing diagnosis risk for disturbed maternal–fetal dyad in high-risk pregnancy.

Prognosis

Researchers who ask prognosis questions strive to understand the outcomes associated with a disease or a health problem (i.e., its consequences), to estimate the probability they will occur, and to predict the types of people for whom the outcomes are most likely. Such studies facilitate the development of long-term care plans for patients. They also provide valuable information for guiding patients to make beneficial lifestyle choices or to be vigilant for key symptoms.

Example of a study aimed at prognosis

Peng and colleagues (2023) examined whether enteral nutrition supplementation initiated in patients less than 24 hours after cardiac bypass surgery as compared to 24 to 48 hours and greater than 48 hours was associated with prognosis.

Etiology (Causation)/Prevention of Harm

It is difficult to prevent harm or treat health problems if we do not know what causes them—and this is the focus of etiology questions. For example, there would be no smoking cessation programs if research had not provided firm evidence that smoking cigarettes causes or contributes to many health problems. Thus, determining the factors and exposures that affect or cause illness, mortality, or morbidity is an important purpose of many studies.

Example of a study aimed at etiology/prevention of harm

Flanagan and colleagues (2023) examined the effects of occupational therapy, physical therapy, and a combination of the two on the change in physical function in patients with and without dementia admitted to skilled nursing facilities from acute care hospitals from the time of admission to quarterly assessment or discharge.

Description

Description questions are not in a category typically identified in EBP-related classification schemes, but so many nursing studies have a descriptive purpose that we include it here. Examples of phenomena that nurse

researchers have described include patients' pain, physical function, confusion, and levels of depression. Quantitative description focuses on the prevalence, size, intensity, and measurable attributes of phenomena. Qualitative researchers, by contrast, describe the dimensions or the evolution of phenomena.

Example of a quantitative study aimed at description

Wang et al. (2024) described the sociodemographic characteristics of patients who missed their screening mammogram at a community health center in a 1-year period. They also sought to describe if and when the missed examinations were completed. Independent predictors of those who missed appointments included being non-Hispanic Black race, non-English speaking, and on Medicaid or other means-tested insurance. At 1-year follow-up, 40.6% of patients who missed appointments had not completed screening a *mammogram*.

Example of a qualitative study aimed at description

Hanan and colleagues (2024) used a qualitative descriptive design to describe health care professionals' perceptions of the barriers and facilitators to caring for long-term care residents with serious persistent mental illness.

Meaning and Processes

Many health care activities (e.g., motivating people to comply with treatments, designing appealing interventions) can benefit from gaining insight into the patients' perspectives, using **qualitative research** methods that address meaning/process questions. Research that offers evidence about what health and illness mean to patients, what barriers they face to positive health practices, and what processes they experience in a transition through a health care crisis are important to evidence-based nursing practice.

Example of a study aimed at meaning/process

Leone-Sheehan et al. (2024) used a qualitative descriptive design to explore intensive care unit nurses' experience of Watson's Theory of Human Caring Caritas Process III of developing spiritual self to meet the significant spiritual and existential needs of patients and their families.

TIP

Several EBP-related purposes involve *cause-probing* research. Therapy/intervention research focuses on whether an intervention *causes* improvements in key outcomes. Prognosis research examines whether a disease or health condition *causes* subsequent adverse consequences. Etiology research seeks explanations about the underlying *causes* of health problems.

Links Between Study Purposes and Evidence-Based Practice

Studies that address therapy/intervention questions provide the most direct evidence for EBP. If we want to know, for example, whether wedge-shaped foam cushions are more effective in preventing heel pressure ulcers than standard foam pillows, we would need to look for rigorous studies that have addressed this therapy question.

Other questions also play a role in improving the quality of nursing care, although in different ways. Table 1.2 presents examples of different questions relating to cigarette smoking, using the EBP-related purpose categories. The findings from studies relating to only one of these questions is directly *actionable*—the therapy question. If there is good evidence that nurse-led smoking cessation programs are effective in reducing smoking among young adults, we might consider initiating such a program in our own community.

TABLE 1.2 Different Categories of Question Relating to Cigarette Smoking

Type of Question	Example of a Research Question on Cigarette Smoking
Therapy/intervention	Does a nurse-led smoking cessation program for young adults reduce smoking?
Diagnosis/assessment	Is our Smoking Susceptibility Index a valid and reliable measure of teenagers' propensity to initiate smoking?
Prognosis	Is a diagnosis of smoking-related lung cancer associated with increased risk of suicidal ideation?
Etiology (causation)/prevention of harm	Does smoking increase the risk of a fatality among people infected with the novel coronavirus?
Description	What percentage of high school students smoke ≥1 pack of cigarettes per week?

Type of Question	Example of a Research Question on Cigarette Smoking
Meaning/process	What is it like for people who have smoked long term to attempt and fail at quitting?

Strong evidence from studies addressing the other questions in Table 1.2 could also guide efforts to improve nursing practice—but not as directly. For example, evidence about suicide ideation from the prognosis question might prompt us to develop a program of emotional support for patients with lung cancer. Results from the etiology study might lead us to launch a smoking cessation initiative in communities hit hard by coronavirus infections. The stories from people who had been smoking long term and failed to quit despite efforts to do so (the meaning question) could lead us to involve them in the design of an intervention for people who smoke persistently.

Nurse researchers are making strides in addressing all types of questions about important health problems—but evidence regarding what "works" to improve nursing practice comes from studies addressing therapy questions. Evidence about the scope of a problem, factors affecting the problem, the consequences of the problem, and the meaning of the problem can, however, play a crucial role in efforts to design better interventions, to aim resources at those in greatest need, and to provide appropriate guidance to patients in everyday practice.

BASICS OF EVIDENCE-BASED NURSING PRACTICE

In this section, we describe some basic principles of EBP. We elaborate on EBP issues in Chapter 18.

Definition of Evidence-Based Practice

Dozens of definitions of EBP have been proposed. Most definitions describe EBP as a *decision-making* (or *problem-solving*) *process*. Most definitions also include the idea that EBP is built on a "three-legged stool," each "leg" of which is essential to the process: *best evidence*, *patient preferences and values*, and *clinical expertise*. Figure 1.1 depicts these concepts.

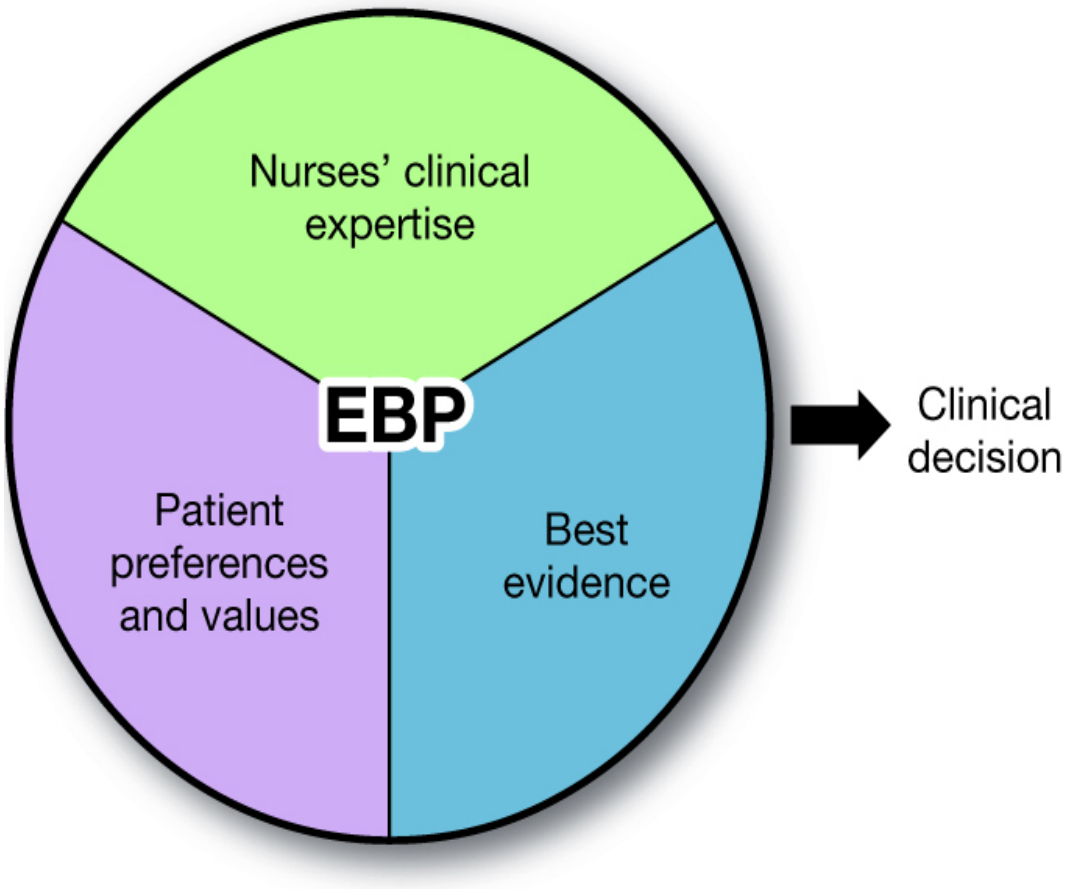


Figure 1.1
Model of evidence-based nursing practice.

Best Evidence

A basic feature of EBP as a clinical problem-solving strategy is that it de-emphasizes decisions based on tradition or expert opinion. The emphasis is on identifying and evaluating the best available research evidence as a tool for solving problems. There continues to be debate about what qualifies as "best" evidence. As we discuss in the next section, evidence is often evaluated in relation to *evidence hierarchies* that rank evidence sources according to the degree to which the evidence is unbiased. Evidence, however, whether "best" or not, is never by itself a sufficient basis for clinical decision-making.

Patient Preferences and Values

Patient input encompasses several concepts, including patient preferences for type of treatment, preferences for being involved in decision-making, social or cultural values, preferences about involving family members in health care decisions, priorities regarding quality-of-life issues, and spiritual or religious values. EBP decisions also require understanding patients' circumstances, such as the resources at their disposal. Nurses thus need the skills to elicit and understand patient preferences and their situations.

Nurses' Clinical Expertise

Decision-making in clinical practice also relies on clinicians' expertise, which is an amalgam of academic knowledge gained during training and continuing education, experiences with patient care, and interdisciplinary sharing of new knowledge. David Sackett, the pioneer of evidence-based medicine, strongly advocated for the importance of clinical expertise in making decisions because even very strong research evidence is seldom appropriate for all patients.

Sources of "Best" Research Evidence

Thousands of studies of relevance to nurses are published every month in professional journals. **Primary studies** must be critically appraised to determine if the evidence is sufficiently rigorous to warrant consideration in nursing practice. Finding evidence useful for practice is often facilitated by the availability of evidence that is preprocessed (synthesized) and sometimes pre-appraised. For example, several evidence-based journals publish synopses of original research (e.g., *Evidence-Based Nursing*, *The Online Journal of Knowledge Synthesis for Nursing*), and the synopses are occasionally accompanied by commentary about the clinical utility of the evidence.

Syntheses that integrate evidence from multiple studies on a given topic are an especially important resource for EBP. The most widely respected type of synthesis is the systematic review. A **systematic review** is not just a literature review—it is a methodical, scholarly inquiry that summarizes and evaluates current evidence on a research question. Systematic reviews are the basis for most clinical practice guidelines.

Systematic reviewers sometimes integrate findings from quantitative studies using statistical methods, in what is called a **meta-analysis**. Meta-analysts treat the findings from a study as one piece of information. The findings from multiple studies on the same topic are combined and analyzed statistically. Meta-analysis is an objective method of integrating a body of findings and of observing patterns that might otherwise have gone undetected (see Chapter 17).

Systematic reviews of qualitative studies often take the form of metasyntheses. A **metasynthesis** is less about combining information and more about amplifying and interpreting it. For certain qualitative questions, an aggregative (rather than interpretive) approach to systematic synthesis called **meta-aggregation** may be appropriate. Strategies have also been developed for systematic **mixed studies review**, which are efforts to integrate and synthesize both quantitative and qualitative evidence on a topic.

Evidence Hierarchies and Level of Evidence Scales

Judgments about what evidence is "best" are often guided by evidence hierarchies. Evidence hierarchies rank evidence sources in terms of their risk of bias, focusing mainly on risk of bias in studies addressing therapy questions. Most evidence hierarchies are represented as pyramids, with the highest ranking sources —those presumed to have the least bias for making inferences about the effects of an intervention—at the top. The hierarchies form **level of evidence (LOE)** scales that rank order types of evidence. Level I evidence usually is considered the best (least biased) type of evidence.

Figure 1.2 shows our eight-level **evidence hierarchy** for therapy/intervention questions. In our scheme, the Level I evidence source is a systematic review of studies called *randomized controlled trials* (RCTs), which are the "gold standard" type of study for therapy questions. An individual RCT is a Level II evidence source. Going down the "rungs" of the evidence hierarchy for therapy questions results in evidence with a higher risk of bias in answering questions about "what works." (Technical terms in Figure 1.2, such as "quasi-experiment," are explained later in the book.)

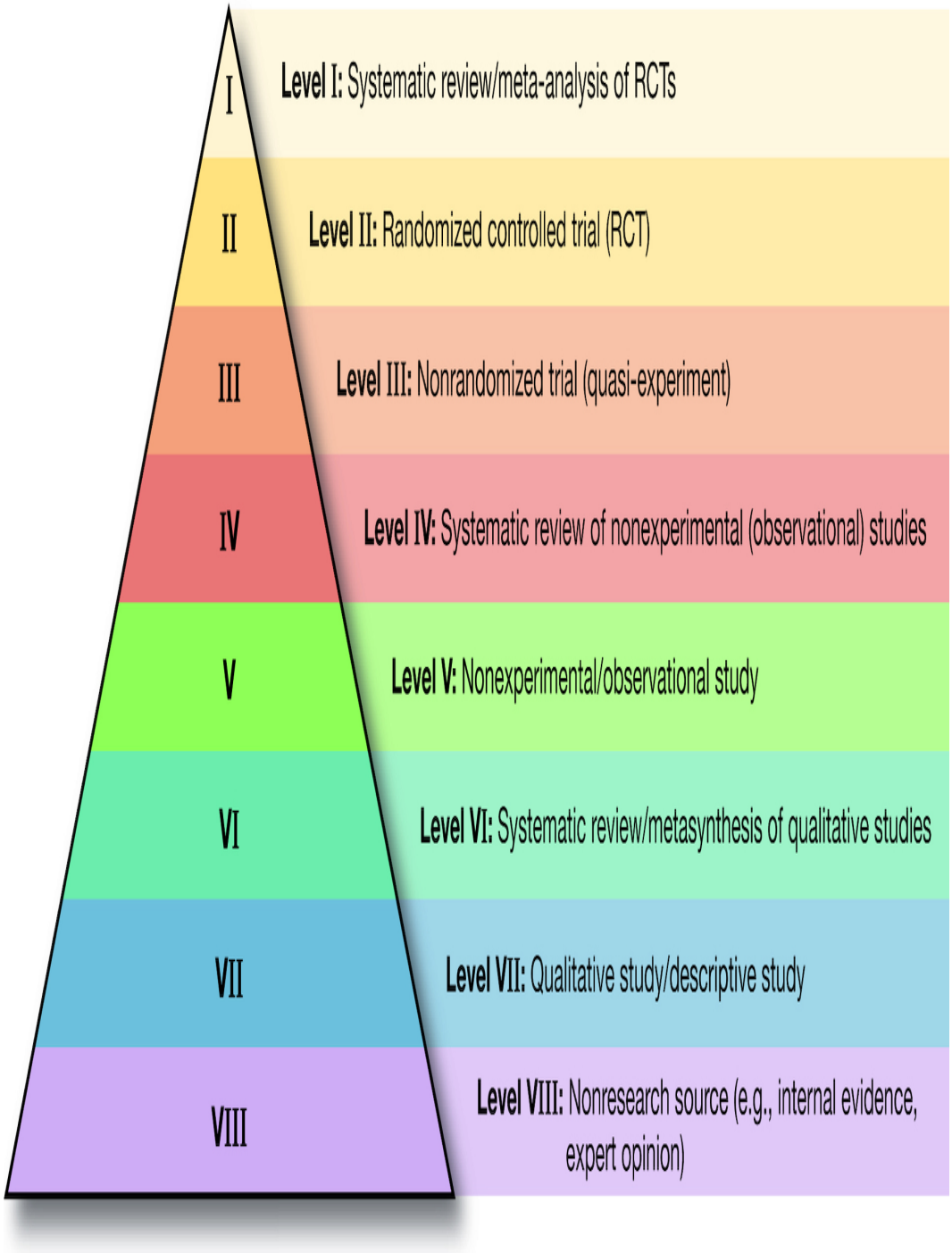


Figure 1.2

Polit–Beck evidence hierarchy/level of evidence scale for therapy questions.

TIP

Sometimes, evidence hierarchies are used to "level" or grade evidence sources, with the implication that higher levels provide better quality evidence. As pointed out by Levin (2014), however, an evidence hierarchy "is not meant to provide a quality rating for evidence retrieved in the search for an answer" (p. 6). She noted that "leveling" a study is not a substitute for a critical appraisal of the evidence.

Asking Well-Worded Clinical Questions for Evidence-Based Practice

In Chapter 18, we describe a five-step process for putting research to use in clinical settings—the "5A" process: Ask, Acquire, Appraise, Apply, and Assess. Here, we focus on the first step.

The first activity in EBP involves asking well-worded clinical questions that can be answered with research evidence. For example, we may wonder, "Is a fish oil–enhanced nutritional supplement effective in stabilizing weight in cancer patients with cachexia?" The answer to such a therapy question may provide "best evidence" on how to address the needs of patients with cachexia.

Most guidance for EBP uses the acronyms PIO and PICO to help practitioners develop well-worded questions. In the PICO form, the clinical question is worded to identify four components:

P: the *Population* or *patients* (What are key characteristics of the patients or people?)
I: the *Intervention*, *influence*, or *exposure* (What is the intervention or therapy of interest? or, What is a potentially beneficial—or harmful—influence?)
C: an explicit *Comparison* to the "I" component (With what is the intervention or influence being compared?)
O: the *Outcome* (What is the outcome in which we are interested?)

Applying this scheme to our question about cachexia, our *population* (P) is cancer patients with cachexia; the *intervention* (I) is fish oil–enhanced nutritional supplements; and the *outcome* (O) is weight stabilization. In this question, the *comparison* is not formally stated, but the implied "C" is the *absence* of fish oil–enhanced supplements—the question is in a PIO format. However, when there is an explicit comparison of interest, the full **PICO format** is used. For example, we might be interested in learning whether fish oil–enhanced supplements (I) are better than melatonin (C) in stabilizing weight (O) in patients with cachexia (P).

For questions that can best be answered with qualitative information (e.g., about the meaning of an experience or health problem), two components are most relevant: the *population* (What are the characteristics of the patients or clients?) and the *situation* (What conditions, experiences, or circumstances are we interested in understanding?).

For example, suppose our question was, "What is it like to suffer from cachexia?" In this case, the question calls for rich qualitative information; the *population* is patients with advanced cancer, and the *situation* is the experience of cachexia.

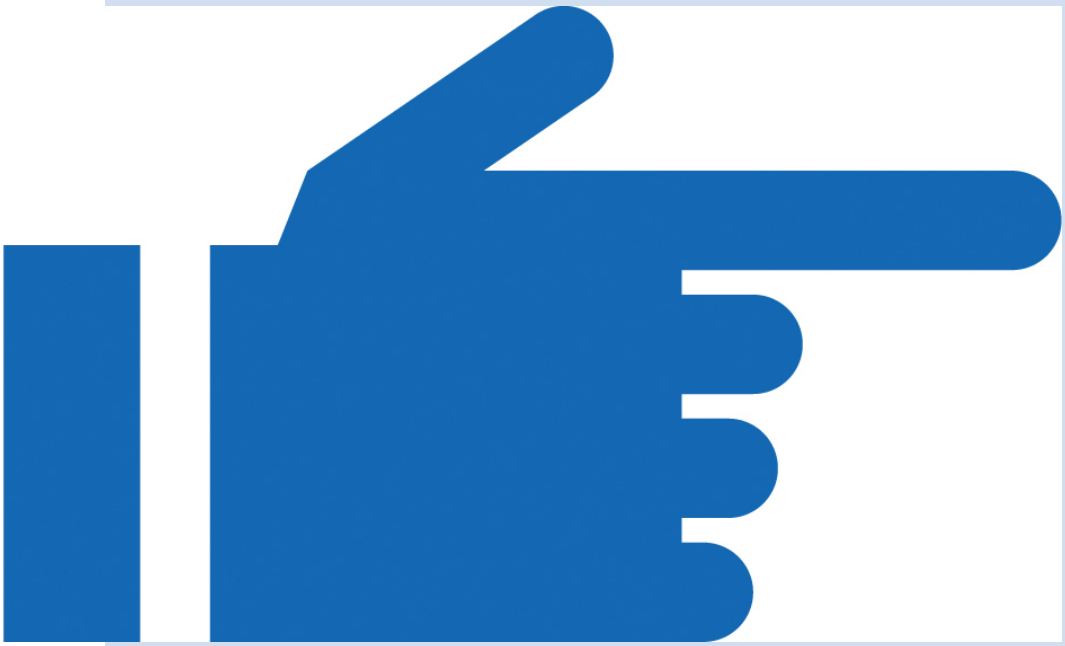
Table 1.3 offers question templates for asking well-framed clinical questions for specific types of questions. The right-hand column includes questions with an explicit comparison (PICO questions), whereas the middle column does not (PIO). The questions are categorized according to the EBP purposes described earlier.

TABLE 1.3 Question Templates for Clinical Questions: PIO and PICO

Type of Question	PIO Question Template (Questions Without an Explicit Comparison)	PICO Question Template (Questions With an Explicit Comparison)
Therapy/treatment/intervention	In _____ (**P**opulation), what is the effect of _____ (**I**ntervention) on _____ (**O**utcome)?	In _____ (**P**opulation), what is the effect of _____ (**I**ntervention), in comparison to _____ (**C**omparative/alternative intervention), on _____ (**O**utcome)?
Diagnosis/assessment	For _____ (**P**opulation), does _____ (**I**dentifying tool/procedure) yield accurate and appropriate diagnostic/assessment information about _____ (**O**utcome)?	For _____ (**P**opulation), does _____ (**I**dentifying tool/procedure) yield more accurate or more appropriate diagnostic/assessment information than _____ (**C**omparative tool/procedure) about _____ (**O**utcome)?
Prognosis	In _____ (**P**opulation), does _____ (**I**nfluence/exposure to disease or condition) increase the risk of _____ (**O**utcome)?	In _____ (**P**opulation), does _____ (**I**nfluence/exposure to disease or condition), relative to _____ (**C**omparative disease/condition OR absence of the disease/condition) increase the risk of _____ (**O**utcome)?
Etiology/harm	In _____ (**P**opulation), does _____ (**I**nfluence/exposure/characteristic) increase the risk of _____ (**O**utcome)?	In _____ (**P**opulation), does _____ (**I**nfluence/exposure/characteristic) compared to _____ (**C**omparative influence/exposure OR lack of influence or exposure) increase the risk of _____ (**O**utcome)?
Description (prevalence/incidence)	In _____ (**P**opulation), how prevalent is _____ (**O**utcome)?	*Explicit comparisons are not typical, except to compare different populations.*

Type of Question	PIO Question Template (Questions Without an Explicit Comparison)	PICO Question Template (Questions With an Explicit Comparison)
Meaning or process	What is it like for _____ (**P**opulation) to experience _____ (condition, illness, circumstance)? OR What is the process by which _____ (**P**opulation) cope with, adapt to, or live with _____ (condition, illness, circumstance)?	*Explicit comparisons are not typical in these types of questions.*

TIP



Although EBP has had a powerful and beneficial impact on health care practices, recent concerns have emerged regarding the applicability of evidence from systematic reviews for individual patients. In Chapter 18, we elaborate on new ideas for creating *practice-based evidence* that enhances *applicability* to individuals, small groups of people, and local contexts.

ASSISTANCE FOR CONSUMERS OF NURSING RESEARCH

We hope that this book will help you develop skills that will allow you to read, appraise, use, and appreciate nursing studies. In each chapter, we present information about methods that nurse researchers use to conduct their studies and provide guidance in several ways. First, we offer tips that often explain what you can expect to find in actual research articles, identified by the icon . There are also special "how-to-tell" tips (identified with the icon) that help with some potentially confusing issues in research articles.

Second, we include guidelines for critically appraising various aspects of a study in every chapter. The guiding questions in Box 1.1 are designed to assist you in using the information in this chapter in a preliminary assessment of a research article.

Box 1.1 Questions for a Preliminary Overview of a Research Report

a. How relevant is the research problem to the practice of nursing?
b. Was the study quantitative or qualitative?
c. What was the underlying purpose (or purposes) of the study—therapy/intervention, diagnosis/Assessment, prognosis, etiology/harm, description, or meaning?
d. What might be some clinical implications of this research? To what type of people and settings is the research most relevant? If the findings were accurate, how might *I* use the results of this study?

And third, we offer opportunities to apply your new skills. The Critical Thinking Exercises at the end of each chapter guide you through appraisals of examples of qualitative and quantitative studies. These activities also challenge you to think about how the findings from these studies could be used in nursing practice. Answers to some of these questions are in the Instructor Resources on website. Two journal articles for the Critical Thinking Exercises are found in the appendices to this book.

Research Examples with Critical Thinking Exercises

This section presents examples of studies with different purposes. Read the research summaries for Examples 1 and 2, and then answer the critical thinking questions that follow. The critical thinking questions for Examples 3 and 4 are based on the studies that appear in their entirety in Appendices A and B of this book.

EXAMPLE 1: QUANTITATIVE RESEARCH

Study: "Using pet therapy to decrease patients' anxiety on two diverse inpatient units" (Mulvaney-Roth et al., 2023)

Purpose: The purpose of the study was to explore the impact of pet therapy on patients' anxiety levels on two diverse inpatient units: Behavioral Health (BHU) and Pediatrics (PEDS).

Methods: This quantitative study used a convenience sample of patients on each of the BHU and PEDS units. After patients consented to the study, they were assigned to either the experimental group (received pet therapy) or the control group (did not receive pet therapy). The researchers used the six-item State Anxiety Scale (SAS) to measure anxiety pre pet therapy and at 1 hour post pet therapy. The Pediatric Emoji Method was used to assist children with the SAS. The pet therapy session was 15 minutes.

Key Findings: The researchers found that patients on each inpatient unit who received the pet therapy session had lower levels of anxiety than patients who did not receive the therapy session.

Conclusions: The researchers concluded that a 15-minute pet therapy session was effective in reducing anxiety levels in patients on both the BHU and PEDS units.

Critical Thinking Exercises

1. Answer the questions from Box 1.1 regarding this study.
2. Why do you think the researchers used two groups to assess the effects of the pet therapy intervention?

3. Could this study have been undertaken as a qualitative study? Why or why not?

EXAMPLE 2: QUALITATIVE RESEARCH

Study: "Nursing staff perceptions of outcomes related to honoring residents' "risky" preferences" (Behrens et al., 2022)

Purpose: The purpose of this study was to describe staff's perspectives of the health and safety outcomes associated with honoring nursing home residents' risky preferences for everyday living and care activities.

Methods: This study used a qualitative descriptive approach and sequential focus groups of nursing staff to obtain in-depth description of the complex and sensitive phenomena of risk. The Preference-Based Person-Centered Risk Engagement Model (Behrens et al., 2020) guided the development of the interview guide and data analysis.

Key Findings: A total of 27 licensed and unlicensed nursing staff participated in 12 sequential focus groups. Each group had three to five participants. The age range of the participants was 18 to 60 years of age. Other characteristics of the sample include 85.2 % female, 59.3% White, 66.6% reporting that their highest level of education was high school, and 51.8% reporting over 11 years of experience working in nursing homes. Three themes were identified: potential harms to staff, potential harms to residents, and positive shared outcomes.

Conclusions: Findings from this study identified physical and psychosocial outcomes associated with delivering person-centered care that honors nursing home residents' risky preferences.

Critical Thinking Exercises

1. Answer the questions in Box 1.1 regarding this study.
2. Why do you think that the researchers audiotaped and transcribed their in-depth interviews with study participants?
3. Do you think it would have been appropriate for the researchers to conduct this study using quantitative research methods? Why or why not?

EXAMPLE 3: QUANTITATIVE RESEARCH IN APPENDIX A

Read the abstract and the introduction from Cheng and colleagues' (2024) study "Advance care planning affects end-of-life treatment preferences among patients with heart failure: A randomized controlled trial" in Appendix A of this book.

1. Answer the questions in Box 1.1 regarding this study.
2. Could this study have been undertaken as a qualitative study? Why or why not?
3. Was this study supported with funding? (This information appears on the first page of the report.)
4. What might a prognosis question for this study be?

EXAMPLE 4: QUALITATIVE RESEARCH IN APPENDIX B

Read the abstract and the introduction from Morrison et al.'s (2024) study "Lived experiences of fatherhood after infertility" in Appendix B of this book.

1. Answer the questions in Box 1.1 regarding this study.
2. Was Morrison et al.'s study conducted within the positivist paradigm or the constructivist paradigm? Provide a rationale for your choice.
3. What was the phenomenon that Morrison and colleagues were studying? How was it defined?

Summary Points

- **Nursing research** is systematic inquiry undertaken to develop evidence on problems of importance to nurses.
- Nurses in various settings are adopting an **evidence-based practice (EBP)** that incorporates research findings into their decisions and interactions with patients.
- Knowledge of nursing research enhances the professional practice of all nurses—including both *consumers of research* (who read and evaluate studies) and *producers of research* (who design and undertake studies).
- Nursing research began with Florence Nightingale but developed slowly until its rapid acceleration in the 1950s. Since the 1980s, a major focus has been on **clinical nursing research**—that is, on problems relating to clinical practice.
- The NINR, established at the U.S. National Institutes of Health in 1993, affirms the stature of nursing research in the United States.
- Contemporary issues in nursing research include the growth of EBP, expansion of local research and quality improvement efforts, research synthesis through systematic reviews, **patient centeredness**, interest in the **applicability** of research to individual patients or groups, and efforts to measure the **clinical significance** of research results.
- Disciplined research stands in contrast to other knowledge sources for nursing practice, such as tradition, authority, personal experience, and trial and error.
- Disciplined inquiry in nursing is conducted mainly within two **paradigms**—worldviews with underlying **assumptions** about reality: the positivist paradigm and the constructivist paradigm.
- In the **positivist paradigm**, it is assumed that there is an objective reality and that natural phenomena are regular and orderly. The assumption of *determinism* refers to the belief that phenomena result from prior causes and are not haphazard.
- **Quantitative research** (associated with positivism) involves the collection and analysis of numeric information. Quantitative research is typically conducted within the traditional **scientific method**, which is systematic and controlled. Quantitative researchers base their findings on **empirical evidence** (evidence collected by way of the human senses) and strive for **generalizability** beyond a single setting or situation.
- In the **constructivist paradigm**, it is assumed that reality is not a fixed entity but is rather a construction of human minds—and thus "truth" is a composite of multiple constructions of reality.
- Constructivist researchers emphasize understanding human experience as it is lived through the collection and analysis of subjective, narrative materials using flexible procedures; this paradigm is associated with **qualitative research**.
- A fundamental distinction that is especially relevant in quantitative research is between studies whose primary intent is to *describe* phenomena and those that are **cause-probing**—i.e., designed to illuminate underlying causes of phenomena. Specific purposes on a description/explanation continuum include identification, description, exploration, prediction/control, and explanation.
- Nursing studies can also be classified in terms of EBP-related aims: therapy/intervention, diagnosis/assessment, prognosis, etiology (causation)/prevention of harm, description, and meaning/processes. Therapy questions are foundational for evidence-based decision-making.
- EBP is the conscientious integration of current best evidence and other factors in making clinical decisions. The three "legs" of EBP are (1) best research evidence, (2) patient preferences and values, and (3) nurses' own clinical experience and knowledge.
- **Primary studies** of original research published in professional journals are one source of evidence for EBP, but preprocessed (synthesized) evidence is especially useful in addressing clinical queries. Systematic reviews, considered the cornerstone of EBP, are important sources of evidence.
- **Systematic reviews** are rigorous integrations of research evidence from multiple studies on a topic. Systematic reviews can involve either narrative approaches to integration (including **metasynthesis** and **meta-aggregation** of qualitative studies) or quantitative approaches (**meta-analysis**) that integrate findings statistically by using individual studies as the unit of analysis.
- There has been a proliferation of **evidence hierarchies** that provide a preliminary guide for finding "best" evidence—evidence with the lowest risk of bias. Evidence hierarchies reflect **level of evidence (LOE) scales** that rank order types of evidence source—primarily for therapy/intervention questions. In LOEs for therapy questions, systematic reviews of RCTs are considered Level I sources.

- EBP efforts typically start by asking a well-worded clinical question for which evidence is then sought. A widely used scheme for asking well-worded clinical questions involves four primary components, an acronym for which is **PICO**: population or patients (P), intervention or influence (I), comparison (C), and outcome (O).

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2 Understanding Key Concepts and Steps in Quantitative and Qualitative Research

Learning Objectives

On completing this chapter, you will be able to:

- Define new terms presented in the chapter and distinguish terms associated with quantitative and qualitative research
- Distinguish experimental and nonexperimental research
- Identify three main disciplinary traditions for qualitative nursing research
- Describe the flow and sequence of activities in quantitative and qualitative research and discuss how and why they differ

Key Terms

- Associative relationship
- Cause-and-effect (causal) relationship
- Clinical trial
- Concept
- Conceptual definition
- Construct
- Data
- Dependent variable
- Emergent design
- Ethnography
- Experimental research
- Gaining entrée
- Grounded theory
- Hypothesis
- Independent variable
- Informant
- Intervention protocol
- Literature review
- Nonexperimental research
- Observational study
- Operational definition
- Outcome variable
- Phenomenology
- Population
- Qualitative data
- Qualitative descriptive research
- Quantitative data

- Relationship
- Research design
- Sample
- Saturation
- Statistical analysis
- Study participant
- Subject
- Theme
- Theory
- Variable

THE BUILDING BLOCKS OF RESEARCH

Research, like any discipline, has its own language—its own *jargon* that can sometimes be intimidating. We readily admit that the jargon is plentiful and can be confusing. Some research jargon used in nursing research has its roots in the social sciences, but sometimes, different terms are used in medical research. Also, some terms are used by both qualitative and quantitative researchers, but others are used mainly by one or the other group. Please bear with us as we cover key terms that you will likely encounter in the research literature.

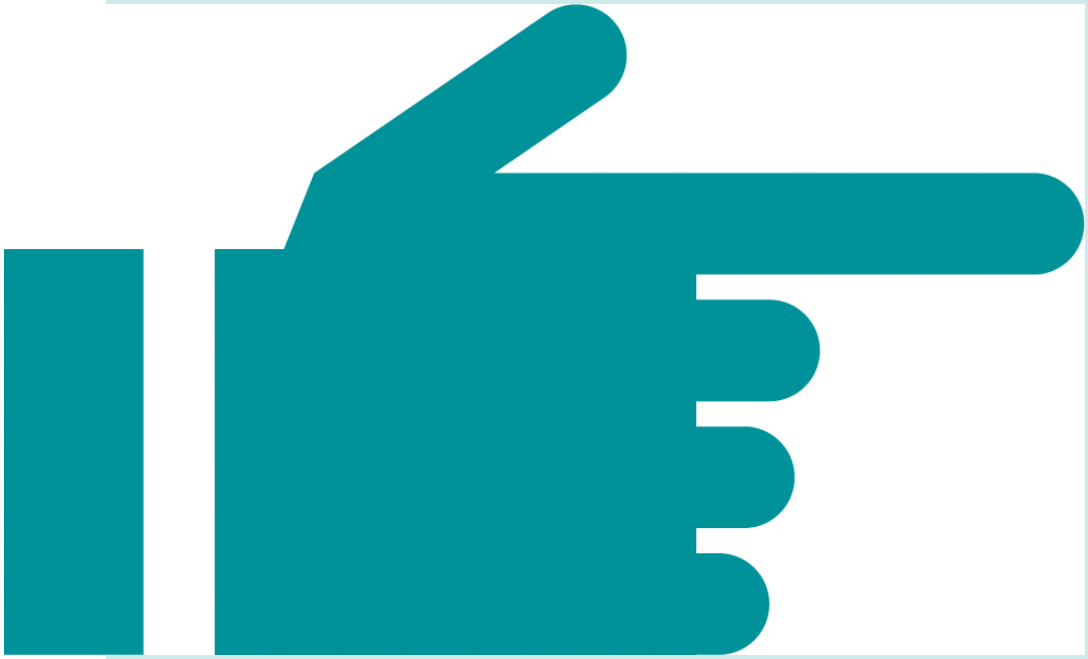
The Faces and Places of Research

When researchers address a research question, they are doing a *study* (or an *investigation*). Studies with humans involve two sets of people: those who do the research and those who provide the information. In a quantitative study, the people being studied are called **subjects** or **study participants**, as shown in Table 2.1. In a qualitative study, the people cooperating in the study are called study participants or **informants**. The person who conducts the research is the *researcher* or *investigator*. Studies are often undertaken by a research team rather than by a single researcher.

TABLE 2.1 Key Terms in Quantitative and Qualitative Research

Concept	Quantitative Term	Qualitative Term
Person contributing information	Subject Study participant —	— Study participant Informant, key informant
Person undertaking the study	Researcher Investigator	Researcher Investigator
That which is being investigated	— Concepts Constructs Variables	Phenomena Concepts — —
Information gathered	Data (numerical values)	Data (narrative descriptions)
Connections between concepts	Relationships (cause-and-effect, associative)	Patterns of association
Logical reasoning processes	Deductive reasoning	Inductive reasoning

HOW-TO-



TELL TIP

How can you tell if an article appearing in a nursing journal is a *study*? In journals that specialize in research (e.g., the journal *Nursing Research*), most articles are original research reports, but in specialty journals, there is usually a mix of research and nonresearch articles. Sometimes you can tell by the title, but sometimes you cannot. You can tell, however, by looking at the major headings of an article. If there is no heading called "Method" or "Research Design" (the section that describes what a researcher *did*) and no heading called "Findings" or "Results" (the section that describes what a researcher *learned*), then it is probably not a study.

Research can be undertaken in a variety of *settings* (the types of place where information is gathered), such as clinics, homes, or other community settings. A *site* is the broad location for the research—it could be an entire community (e.g., a Haitian neighborhood in Miami) or an institution (e.g., a long-term care facility in Seattle). Researchers sometimes do *multisite studies* because the use of multiple sites yields a larger and often more diverse group of participants.

Concepts, Constructs, and Theories

Nursing research addresses real-world problems, but studies are conceptualized in abstract terms. For example, *pain*, *fatigue*, and *obesity* are abstractions of human attributes. These abstractions are called *phenomena* (especially in qualitative studies) or **concepts**.

Researchers sometimes use the term **construct**, which also refers to an abstraction, but often one that is deliberately invented (or constructed). For example, *self-care* in Orem's model of health maintenance is a construct. The terms *construct* and *concept* are sometimes used interchangeably, but a construct often refers to a more complex abstraction than a concept.

A **theory** is an explanation of some aspect of reality. In a theory, concepts are knitted together into a coherent system to describe or explain some aspect of the world. Theories play a role in both qualitative and quantitative research. In a quantitative study, researchers sometimes start with a theory and, using deductive reasoning, make predictions about how phenomena would behave in the real world *if the theory were valid*. The specific predictions are then tested. In qualitative studies, theory often is the *product* of the research: The investigators use information from study participants inductively to develop a theory rooted in the participants' experiences.

TIP

The reasoning process of *deduction* is associated with quantitative research, and *induction* is associated with qualitative research.

Variables

In quantitative studies, concepts are called **variables**. A variable, as the name implies, is something that varies, differs, or changes. Weight, anxiety, and nausea are all variables—they vary from one person to another and can also change over time within the same person. Most human characteristics are variables. If everyone weighed 150 lb, weight would not be a variable, it would be a *constant*. But it is precise because people and conditions *do* vary that most research is conducted. Quantitative researchers seek to understand how or why things vary and to learn how differences in one variable relate to differences in another. For example, in lung cancer research, lung cancer is a variable because not everybody has this disease. Researchers have studied factors that might be linked to lung cancer, such as cigarette smoking. Smoking is also a variable because not everyone smokes. A variable, then, is any quality of a person, group, or situation that varies or takes on different values. Variables are the central building blocks of quantitative studies.

TIP

Every study focuses on one or more phenomena, concepts, or variables, but these terms per se are not necessarily used in research reports. For example, a report might say, "The purpose of this study is to examine the effect of nurses' workload on hand hygiene compliance." Although the researcher did not explicitly label anything as a variable, the variables under study are *workload* and *hand hygiene compliance*. Key concepts or variables are often indicated in the study title.

Characteristics of Variables

Variables are often inherent human traits, such as age or weight, but sometimes researchers create a variable. For example, if a researcher tests the effectiveness of patient-controlled analgesia compared to intramuscular analgesia in relieving pain after surgery, some patients would be given one type of analgesia and some would receive the other. In the context of this study, the method of pain management is a variable because different patients are given different methods.

Some variables take on a wide range of values that can be represented on a continuum (e.g., a person's age or weight). Other variables take on only a few values; sometimes such variables convey quantitative information (e.g., number of children), but others simply involve placing people into categories (e.g., blood type A, B, AB, or O).

Dependent and Independent Variables

As noted in Chapter 1, many studies seek to understand causes of phenomena. Does a nursing intervention *cause* improvements in patient outcomes? Does smoking *cause* lung cancer? The presumed cause is the **independent variable**, and the presumed effect is the **dependent variable** or **outcome variable**. The dependent variable is the outcome that researchers want to understand, explain, or predict. In terms of the PICO scheme discussed in Chapter 1, the dependent variable corresponds to the "O" (outcome). The independent variable corresponds to the "I" (the intervention, influence, or exposure) and the "C" (the comparison).

TIP

In searching for evidence, a nurse might want to learn about the effects of an intervention or influence (I), compared to *any* alternative, on an outcome (O) of interest. In a cause-probing study, however, researchers must always specify the comparator (the "C").

The terms *independent variable* and *dependent variable* also can be used to indicate *direction of influence* rather than cause and effect. For example, suppose we compared levels of depression among those diagnosed with pancreatic cancer and found those who identified as men to be more depressed than those who identified as women. We could not conclude that depression was *caused* by gender. Yet the direction of influence begins to link the person's gender identity to depression. In this situation, it is appropriate to consider depression as the dependent variable and gender as the independent variable.

TIP

Few research reports explicitly label variables as dependent and independent. Moreover, variables (especially independent variables) are sometimes not fully spelled out. Take the following research question: What is the effect of exercise on heart rate? In this example, heart rate is the dependent variable. Exercise, however, is not in itself a variable. Rather, exercise versus something else (e.g., no exercise) is a variable; "something else" is implied rather than stated in the research question.

Most outcomes have multiple causes or influences. If we were studying factors that influence people's body mass index (BMI), the independent variables might be height, physical activity, and diet. And, two or more outcome variables often are of interest. For example, a researcher may compare the effects of alternative dietary interventions on participants' weight, lipid profile, and self-esteem. It is common to design studies with multiple independent and dependent variables.

Variables are not inherently dependent or independent. A dependent variable in one study could be an independent variable in another. For example, a study might examine the effect of an exercise intervention (the independent variable) on osteoporosis (the dependent variable) to answer a therapy question. Another study might investigate the effect of osteoporosis (the independent variable) on bone fracture incidence (the dependent variable) to address a prognosis question. In short, whether a variable is independent or dependent, it is a function of the role that it plays in a particular study.

Example of independent and dependent variables

Research question: Does magnesium supplementation effectively treat nocturnal leg cramps? (Kaufman et al., 2023)

Independent variable: Magnesium supplementation

Dependent variable: Leg cramps

Conceptual and Operational Definitions

The concepts of interest to researchers are abstractions, and researchers' worldviews shape how those concepts are defined. A **conceptual definition** is the theoretical meaning of a concept. Researchers need to conceptually define even seemingly straightforward terms. A classic example used by nurses, as well as

many other health professionals, is the concept of self-care. Ferguson and colleagues (2024) conducted a review of papers describing self-care that were published between 2009 and 2021. In their review of 116 publications, they identified 91 definitions of self-care. Researchers undertaking studies concerning self-care need to clarify how they conceptualize it.

In qualitative studies, conceptual definitions of key phenomena may be a major end product, reflecting an intent to have concepts explained by those being studied. In quantitative studies, however, researchers must define concepts at the outset because they must decide how the variables will be measured. An **operational definition** specifies what the researchers must do to measure the concept and collect needed information.

Readers of research articles may not agree with how researchers conceptualized and operationalized variables. However, definitional precision is important in communicating what concepts mean within the context of the study.

Example of conceptual and operational definitions

Hou et al. (2022) examined the relationships among social capital, patient empowerment, and self-management in patients undergoing hemodialysis in China. Patient empowerment was conceptually defined as "the degree to which patients are able to act autonomously and think critically concerning their own treatment and care" (p. 2). The construct of patient empowerment was operationalized using the Chinese version of the Client Empowerment Scale.

Data

Research **data** (singular, datum) are the pieces of information gathered in a study. In quantitative studies, researchers identify and define their variables and then collect relevant data from participants. The actual *values* of the study variables constitute the data. Quantitative researchers collect primarily **quantitative data**—information in numeric form. For example, if we conducted a quantitative study in which a key variable was *depression*, we would need to measure how depressed participants were. We might ask, "Thinking about the past week, how depressed would you say you have been on a scale from 0 to 10, where 0 means 'not at all' and 10 means 'the most possible'?" Box 2.1 presents quantitative data for three fictitious people. Subjects provided a number on the 0 to 10 continuum corresponding to their degree of depression—9 for subject 1 (a high level of depression), 0 for subject 2 (no depression), and 4 for subject 3 (mild depression).

In qualitative studies, researchers collect primarily **qualitative data**, that is, narrative descriptions. Narrative data can be obtained by conversing with participants, by making notes about their behavior in naturalistic settings, or by obtaining narrative records, such as diaries. Suppose we were studying depression qualitatively. Box 2.2 presents qualitative data for three participants responding conversationally to the prompt, "Tell me about how you have been feeling lately in terms of your mood." Here, the data consist of rich narrative descriptions of participants' emotional states. In reports on qualitative studies, researchers include excerpts from their narrative data to support their interpretations.

Box 2.1 Example of Quantitative Data

Question:	Thinking about the past week, how depressed would you say you have been on a scale from 0 to 10, where 0 means "not at all" and 10 means "the most possible"?	
Data:	9	(Subject 1)
	0	(Subject 2)
	4	(Subject 3)

Box 2.2 Example of Qualitative Data

Question:	Tell me about how you have been feeling lately in terms of your mood.
Data:	"Well, actually, I've been pretty depressed lately, to tell you the truth. I wake up each morning and I can't seem to think of anything to look forward to. I mope around the house all day, kind of in despair. I just can't seem to shake the blues and I've begun to think I need to go see a shrink." (Participant 1)
	"I can't remember ever feeling better in my life. I just got promoted to a new job that makes me feel like I can really get ahead in my company. And I've just gotten engaged to a really great guy who is very special." (Participant 2)
	"I've had a few ups and downs the past week but basically things are on a pretty even keel. I don't have too many complaints." (Participant 3)

Relationships

Researchers usually study phenomena in relation to other phenomena—they examine relationships. A **relationship** is a connection between phenomena; for example, researchers repeatedly have found that there is a relationship between frequency of turning bedridden patients and the incidence of pressure injuries. Qualitative and quantitative researchers examine relationships in different ways.

In quantitative studies, relationships are often explicitly expressed in quantitative terms, such as *more than* or *less than*. For example, consider a person's weight as our outcome variable. What variables are related to (associated with) a person's weight? Some possibilities include height, caloric intake, and exercise. For each independent variable, we can make a prediction about its relationship to the outcome:

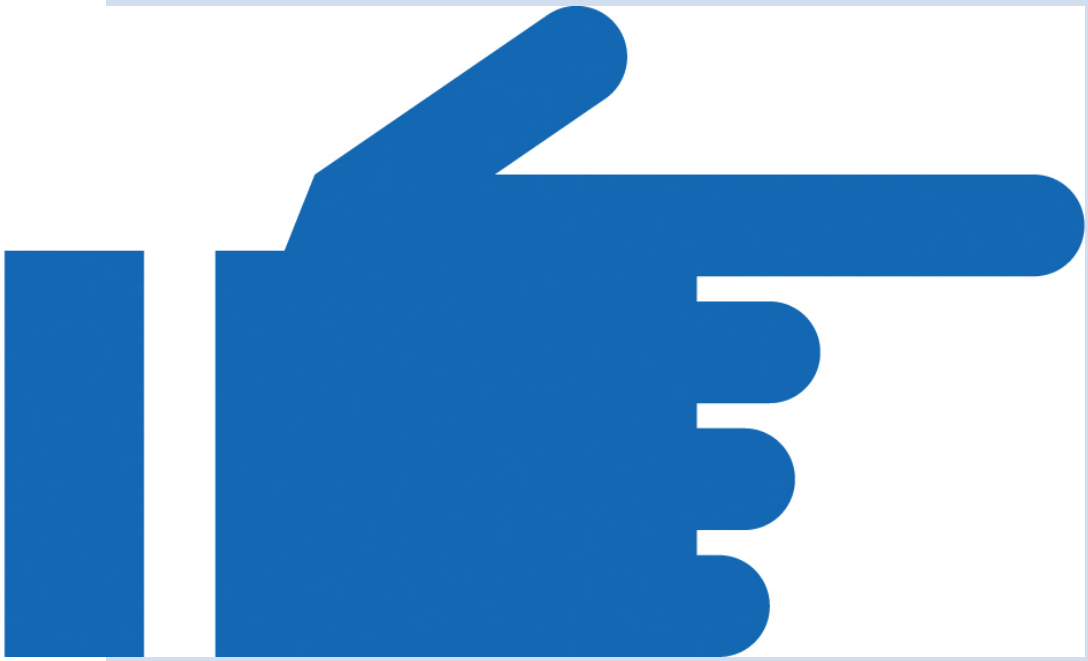
Height: Tall people will weigh more than short people.

Caloric intake: People with high caloric intake will be heavier than those with low caloric intake.

Exercise: The lower the amount of exercise, the greater will be the person's weight.

Each statement expresses a predicted relationship between weight (the outcome) and a measurable independent variable. Most quantitative research is conducted to assess whether relationships exist among variables and to measure how strong the relationship is.

TIP



Relationships are expressed in two basic forms. First, relationships can be expressed as "if more of Variable X, then more of (or less of) Variable Y." For example, there is a relationship between height and weight: With greater height, there tends to be greater weight, that is, tall people tend to weigh more than short people. The second form involves relationships expressed as group differences. For example, there is a relationship between sex and height: Males tend to be taller than females.

Variables can be related to one another in different ways, including **cause-and-effect** (**causal**) **relationships**. Within the positivist paradigm, natural phenomena are assumed to have antecedent causes that are discoverable. For example, we might speculate that there is a causal relationship between caloric intake and weight: All else being equal, eating more calories causes greater weight. As noted in Chapter 1, many quantitative studies are *cause-probing*—they seek to illuminate the causes of phenomena.

Example of a study of causal relationships

Yıldırım and Gerçeker (2023) studied whether the use of virtual reality and the application of a cold vibration device during intravenous insertion would improve the first-time attempt of intravenous insertion and procedure-related pain, fear, and anxiety in children.

Not all relationships can be interpreted as causal. There is a relationship, for example, between a person's pulmonary artery and tympanic temperatures: People with high readings on one tend to have high readings on the other. We cannot say, however, that pulmonary artery temperature *caused* tympanic temperature, or vice versa. This type of relationship is sometimes referred to as an **associative** (or *functional*) **relationship** rather than a causal one.

Example of a study of associative relationships

Van Wilder and colleagues (2023) examined psychosocial factors associated with health-related quality of life in 544 patients with chronic diseases. They found that the modifiable

factors of illness perception and sense of coherence were associated with health-related quality of life.

Qualitative researchers are not concerned with quantifying relationships nor in testing and confirming causal relationships. However, qualitative researchers may seek patterns of association as a way of illuminating the underlying meaning and dimensionality of phenomena of interest. Patterns of interconnected concepts are identified as a means of understanding the whole.

Example of a qualitative study of patterns

Utilizing Newman's theory of health as expanding consciousness as the theoretical framework, Shipley and Falkenstern (2023) explored the life patterns of family caregivers of those with amyotrophic lateral sclerosis (ALS). They found nine patterns of the whole across all ALS family caregivers.

MAJOR CLASSES OF QUANTITATIVE AND QUALITATIVE RESEARCH

Researchers usually work within a paradigm that is consistent with their worldview and that gives rise to the types of questions that excite their curiosity. In this section, we briefly describe broad categories of quantitative and qualitative research.

Quantitative Research: Experimental and Nonexperimental Studies

A basic distinction in quantitative studies is between experimental and nonexperimental research. In **experimental research**, researchers actively introduce an intervention or treatment—usually to address therapy questions. In **nonexperimental research**, on the other hand, researchers are bystanders—they collect data without introducing treatments (most often, to address etiology, prognosis, diagnosis, or description questions). 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. If, on the other hand, a researcher compared elimination patterns of two groups whose regular eating patterns differed, the study would be nonexperimental because there is no intervention. In medical and epidemiologic research, experimental studies usually are called **clinical trials**, and nonexperimental inquiries are called **observational studies**.

Experimental studies are explicitly designed to test causal relationships—to test whether an intervention causes changes in the outcome. Sometimes, nonexperimental studies also explore causal relationships, but causal inferences in nonexperimental research are tricky and less conclusive, for reasons we explain in a later chapter.

Example of experimental research

Leng et al. (2024) examined the impact of a yoga intervention on symptoms of depression and quality of life in the dyad of the care partner and care recipient. Findings suggest that there was a significant decrease in symptoms of depression and an improvement in quality of life with the yoga intervention.

Example of nonexperimental research

Gregory and colleagues (2024) examined data from the 2019 Behavioral Risk Factor Surveillance System (BRFSS). In the sample of 42,727 survey respondents who reported a previous diagnosis of cancer, the researchers explored the proportion of cancer survivors who met the health behavior guidelines recommended by the American Cancer Society (ACS).

They found that 84.9% met guidelines for not smoking, 89.5% met guidelines for not drinking excessive alcohol, 66.8% met BMI guidelines, and 51.1% met recommended physical activity levels. However, only 15.1% met the guidelines for adequate fruit and vegetable intake. In this nonexperimental study to address a question about healthy lifestyle, the researchers did not intervene in any way. Their intent was to study the health behaviors in survivors of cancer.

Qualitative Research: Disciplinary Traditions

The majority of qualitative nursing studies can best be described as **qualitative descriptive research**. Many qualitative studies, however, are rooted in research traditions that originated in anthropology, sociology, and psychology. Three such traditions are briefly described here. Chapter 10 provides a fuller discussion of these and other traditions and the methods associated with them.

Grounded theory research seeks to describe and understand key social psychological processes. 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 processes that characterize an event or situation. 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 explanations of phenomena that are grounded in reality.

Example of a grounded theory study

Michaels and Meeker (2024) conducted a grounded theory study to help explain the process of family caregiving to older adults who lived at home in rural areas and required daily assistance. Two interviews were conducted, each with 15 family caregivers. Results indicated that family caregivers engaged in the process of orchestrating care by growing into caregiving, integrating technology, and utilizing networks when providing and managing caregiving.

Phenomenology is concerned with the lived experiences of humans. Phenomenology is an approach to thinking about what people's life experiences are like and what they mean. Phenomenologic researchers ask questions such as, "What is the *essence* of this phenomenon as experienced by these people?" or "What is the meaning of the phenomenon to those who experience it?"

Example of a phenomenologic study

Bond and colleagues (2025) conducted a phenomenologic study to explore the experiences of racial microaggressions for eight Black individuals while seeking orthopedic-related care.

Ethnography, the primary research tradition in anthropology, provides a framework for studying the patterns and lifeways 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. Ethnographers strive to learn from members of a cultural group, to understand their worldview, and to describe their customs and norms.

Example of an ethnographic study

Monari et al. (2025) conducted a focused ethnography in Canada to explore Black family members' experiences regarding access to culturally supportive resources for family members and their relatives who suffer from substance use disorders.

MAJOR STEPS IN A QUANTITATIVE STUDY