Essentials of Nursing Research

APPRAISING EVIDENCE FOR NURSING PRACTICE

Ninth Edition

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Cheryl Tatano Beck

Wolters Kluwer

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TO

Our Families—Our Husbands, Our Children (and Their Spouses/Fiancés), and Our Grandchildren

Husbands: Alan and Chuck

Children: Alex (Maryanna), Alaine (Jeff), Lauren (Vadim), Norah (Chris), Curt, and Lisa

Grandchildren: Maren, Julia, Cormac, Ronan, and Cullen

ABOUT THE AUTHORS

Denise F. Polit, PhD, FAAN, is an American health care researcher who is recognized internationally as an authority on research methods, statistics, and measurement. She received her Bachelor's degree from Wellesley College and her Ph.D. from Boston College. She is the president of a research consulting company, Humanalysis, Inc., in Saratoga Springs, New York, and professor at Griffith University, Brisbane, Australia. She has published in numerous journals and has written several award-winning textbooks. She has recently written a ground-breaking book on measurement in health, *Measurement and the Measurement of Change: A Primer for the Health Professions*. Her research methods books with Dr. Cheryl Beck have been translated into French, Spanish, Portuguese, German, Chinese, and Japanese. She has been invited to give lectures and presentations in many countries, including Australia, India, Ireland, Denmark, Norway, South Africa, Turkey, Sweden, and the Philippines. Denise has lived in Saratoga Springs for 29 years and is active in the community. She has assisted numerous nonprofit organizations in designing surveys and analyzing survey data. Currently, she serves on the board of directors of the YMCA, Opera Saratoga, and the Saratoga Foundation.

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 Nursing's Distinguished Professional Service Award, Eastern Nursing Research Society's Distinguished Researcher Award, the Distinguished Alumna Award from Yale University School of Nursing, and the Connecticut Nurses' Association's Diamond Jubilee Award for her contribution to nursing research. Over the past 30 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), which is published by Western Psychological Services. She is a prolific writer who has published over 150 journal articles. In addition to co-authoring 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 two other books: *Traumatic Childbirth* and *Routledge International Handbook of Qualitative Nursing Research*. Her most recent book is *Developing a Program of Research in Nursing*.

Essentials of Nursing Research, ninth edition, helps students learn how to read and critique 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 nurse researchers' use of emerging methods. Feedback from our loyal adopters has inspired several important changes to the content and organization. We are convinced that these revisions introduce important improvements—while retaining many features that have made this book a classic best-selling textbook throughout the world. The ninth edition of this book, its study guide, 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 research critique. The textbook offers guidance to students who are learning to appraise research reports and use research findings in practice.

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

1. An assumption 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.

NEW TO THIS EDITION

New Organization

In the previous edition, we separated chapters on quantitative and qualitative designs and methods into two separate parts. In this edition, we organized the parts by methodologic content. So, for example, Part 3 in this edition covers designs and methods for quantitative, qualitative, and mixed methods research, and Part 4 is devoted to analysis and interpretation in quantitative and qualitative studies. (Please see "The Text" later in this preface for more information.) We think this new organization offers greater continuity of methodologic concepts and will facilitate better understanding of key methodologic differences between quantitative and qualitative research. We are confident that this new organization

will better meet the needs of students and faculty.

Manageable Text for One-Semester Course

We have streamlined the text to make it more manageable for use in a one-semester course. We reduced the length by organizing content differently and by keeping essential information in the text while moving background/advanced content online, making this an 18-chapter book rather than the previous 19 chapters in the eighth edition.

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. Most importantly, we have reduced and simplified the coverage of statistical information. We eliminated the chapter on measurement, opting to present a shorter, more digestible section on this topic in our chapter on quantitative data collection, which is supplemented by information in the chapter on statistical analysis. In addition, throughout the book we have used more straightforward, concise language.

New Content

In addition to updating the book with new information on conventional research methods, we have added content on the following topics:

- Quality improvement projects, describing how they are distinct from research studies and evidence-based practice (EBP) projects. This new content is found in Chapter 13.
- Clinical significance, a seldom-mentioned but important topic that has gained prominence among researchers in other health care fields but has only recently gained traction among nurse researchers. This new content is found in Chapter 15.

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, and describes major purposes of nursing research. Chapter 2 offers guidance on using research to build an evidence-based practice. Chapter 3 introduces readers to key research terms and presents an overview of steps in the research process for both quantitative and qualitative studies. Chapter 4 focuses on research journal articles, explaining what they are and how to read them. Chapter 5 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 6

focuses on the development of research questions and the formulation of research hypotheses. Chapter 7 discusses how to retrieve research evidence (especially in electronic bibliographic databases) and the role of research literature reviews. Chapter 8 presents information about theoretical and conceptual frameworks.

- **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 9 describes fundamental design principles and discusses many specific aspects of quantitative research design, including efforts to enhance rigor. Chapter 10 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 11 describes the various qualitative research traditions that have contributed to the growth of constructivist inquiry and presents the basics of qualitative design. Chapter 12 covers sampling and data collection methods used in qualitative research, describing how these differ from approaches used in quantitative studies. Chapter 13 emphasizes mixed methods research, but the chapter also discusses other special types of research such as surveys, outcomes research, and quality improvement projects.
- **Part 4, Analysis and Interpretation in Quantitative and Qualitative Research,** presents tools for making sense of research data. Chapter 14 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 15 discusses approaches to interpreting statistical results, including interpretations linked to assessments of clinical significance. Chapter 16 discusses qualitative analysis, with an emphasis on ethnographic, phenomenologic, and grounded theory studies. Chapter 17 elaborates on criteria for appraising trustworthiness and integrity in qualitative studies. Finally, Chapter 18 describes systematic reviews, including how to understand and appraise both meta-analyses and metasyntheses.
- At the end of the book, we offer students additional critiquing support. **In the appendices, we offer full-length research articles —**two quantitative, one qualitative, and one mixed methods—that students can read, analyze, and critique. Students can model their critiques on the **full critiques of two of those studies provided or compare their work to the ones provided**. 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.
- **Critiquing Guidelines.** Each chapter includes guidelines for conducting a critique 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 appraisal by research consumers.

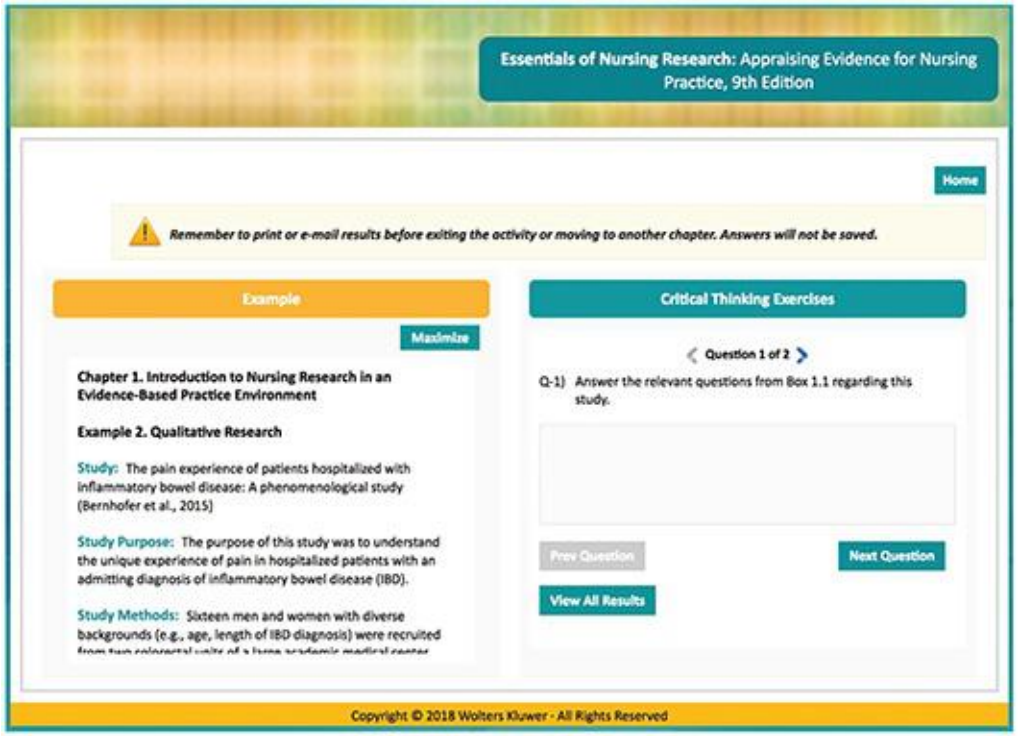
- **Research Examples and Critical Thinking Exercises.** Each chapter concludes with one or two actual research examples designed to highlight critical points made in the chapter and to sharpen the reader's critical thinking skills. In addition, many research examples are used to illustrate key points 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 Appendix A (a quantitative study) and Appendix B (a qualitative study).
- **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 terms, and we have made the list more focused and less daunting by including only *key* new 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.

thePoint®

Essentials of Nursing Research: Appraising Evidence for Nursing Practice, ninth edition, has ancillary resources designed with both students and instructors in mind, available on thePoint® website.

Student Resources Available on thePoint®

- **Supplements for Each Chapter** further students' exploration of specific topics. A full list of the Supplements appears on page xxii. These supplements can be assigned to provide additional background or to offer advanced material to meet students' specific needs.
- **Interactive Critical Thinking Activity** brings the Critical Thinking Exercises from the textbook (except those focused on studies in the appendices) to an easy-to-use interactive tool that enables students to apply new skills that they learn in each chapter. Students are guided through appraisals of real research examples and then ushered through a series of questions that challenge them to think about the quality of evidence from the study. Responses can be printed or e-mailed directly to instructors for homework or testing.



- **Hundreds of Student Review Questions** help students to identify areas of strength and areas needing further study.
- **Answers to Critical Thinking Exercises** are provided for questions related to the studies in Appendices A and B of the textbook.
- **Journal Articles**—18 full articles from Wolters Kluwer journals (one corresponding to each chapter)—are provided for additional critiquing opportunities. Many of these are the full journal articles for studies used as the end-of-chapter Research Examples. All journal articles that appear on thePoint® are identified in the text with and are called out in the References lists for appropriate chapters with a double asterisk (**).
- **Internet Resources with relevant and useful websites** related to chapter content can be clicked on directly without having to retype the URL and risk a typographical error. This edition also includes **links to all open-access articles cited in the textbook; these articles** are called out in the References lists for appropriate chapters with a single asterisk (*).
- **Critiquing Guidelines** and **Learning Objectives** from the textbook are available in Microsoft Word for your convenience.
- **Nursing Professionals Roles and Responsibilities**.

Instructor's Resources Available on thePoint®

- NEW! **Test Generator Questions** are completely new and written by the book's authors for the ninth edition. Hundreds of multiple-choice questions aid instructors in assessing their students' understanding of the chapter content.
- **An Instructor's Manual** includes a preface that offers guidance to improve the teaching experience. We have recognized the need for strong support for instructors in teaching a course that can be quite

challenging. Part of the difficulty stems from students' anxiety about the course content and their concern that research methods might not be relevant to their nursing practice. We offer numerous suggestions on how to make learning about—and teaching—research methods more rewarding. The contents of the Instructor's Manual include the following for each chapter:

- **Statement of Intent.** Discover the authors' goals for each chapter.
- **Special Class Projects.** Find numerous ideas for interesting and meaningful class projects. Check out the icebreakers and activities relating to the Great Cookie Experiment with accompanying SPSS files.
- **Test Questions and Answers.** True/false questions, plus important application questions, test students' comprehension and their ability to put their new critiquing skills to use. The application questions focus on a brief summary of a study and include several short-answer questions (with our answers), plus essay questions. These application questions are intended to assess students' knowledge about methodologic concepts and their critiquing skills.

- **Answers to the Interactive Critical Thinking Activity.** Suggested answers to the questions in the Interactive Critical Thinking Activity are available to instructors. Students can either print or e-mail their responses directly to the instructor for testing or as a homework assignment.
- **Two sets of PowerPoint Slides:**
  - **"Test Yourself!" PowerPoint Slides.** For each chapter, a slide set of five multiple-choice "Test Yourself!" questions relating to key concepts in the chapter are followed by answers to the questions. 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 i>clickers 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.
  - **PowerPoint Presentations** offer traditional summaries of key points in each chapter for use in class presentations. These slides are available in a format that permits easy adaptation and also include audience response questions that can be used on their own or are compatible with i>clicker and other audience response programs and devices.
- **An Image Bank** includes figures from the text.
- **QSEN Map** shows how the book content integrates QSEN competencies.
- **BSN Essentials Competencies Map** shows how the book content integrates American Association of Colleges of Nursing (AACN) Essentials of Baccalaureate Education for Professional Nursing Practice competencies.
- **Strategies for Effective Teaching** offer creative approaches for engaging students.
- **Learning Management System Course Cartridges**.
- **Access to all student resources previously discussed.**

STUDY GUIDE

The accompanying ***Study Guide for Essentials of Nursing Research***, ninth edition, is available for purchase and augments the text, providing students with opportunities to apply their learning.

- **Critiquing opportunities** abound in the *Study Guide*, **which includes eight research articles in their entirety**. The studies represent a range of nursing topics and research approaches, including a randomized controlled trial, a correlational/mixed methods study, an EBP project, three qualitative studies (ethnographic, phenomenologic, and grounded theory), a meta-analysis, and a metasynthesis. The **Application Exercises** in each chapter guide students in reading, understanding, and critiquing these eight studies.
- Answers to the "Questions of Fact" section in the Application Exercises in each chapter are presented in Appendix I of the *Study Guide* so that students can get immediate feedback about their responses.
- Although critiquing skills are emphasized in the *Study Guide*, other included activities support students' learning of fundamental research terms and principles, such as fill-in-the-blank exercises, matching exercises, and focused Study Questions. Answers to those questions that have an objective answer are provided in Appendix I.

COMPREHENSIVE, INTEGRATED DIGITAL LEARNING SOLUTIONS

We are delighted to introduce an expanded suite of digital solutions to support instructors and students using *Essentials of Nursing Research*, ninth edition. Now for the first time, our textbook is embedded into two integrated digital learning solutions—one specific for prelicensure programs and the other for postlicensure—that build on the features of the text with proven instructional design strategies. To learn more about these solutions, visit http://www.nursingeducationsuccess.com/ or contact your local Wolters Kluwer representative.

Lippincott CoursePoint

Our prelicensure solution, **Lippincott CoursePoint**, is a rich learning environment that drives course and curriculum success to prepare students for practice. Lippincott CoursePoint is designed for the way students learn. The solution connects learning to real-life application by integrating content from *Essentials of Nursing Research* with video cases, interactive modules, and evidence-based 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.

Lippincott CoursePoint for Nursing Research features the following:

- **Leading Content in Context.** Digital content from *Essentials of Nursing Research*, ninth edition, is embedded in our Powerful Tools, engaging students and encouraging interaction and learning on a deeper level.
  - The complete interactive eBook features annual content updates with the latest EBPs and 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.

- **Powerful Tools to Maximize Class Performance.** Additional course-specific tools provide case-based learning for every student:
  - **Video Cases** show how nursing research and evidence-based practice relates to real-life nursing practice. By watching the videos and completing related activities, students will flex their evidence-based practice 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.
  - **Curated Collections of Journal Articles** are provided via *Lippincott NursingCenter*, Wolters Kluwer's premier destination for peer-reviewed nursing journals. Through integration of CoursePoint and NursingCenter, students will engage in how nursing research influences practice.
- **Data to Measure Students' Progress.** Student performance data provided in an intuitive display lets instructors quickly assess whether students have viewed interactive modules and video cases outside of class as well as see students' performance on related NCLEX-style quizzes, ensuring students are coming to the classroom ready and prepared to learn.

To learn more about Lippincott CoursePoint, please visit www.nursingeducationsuccess.com/coursepoint.

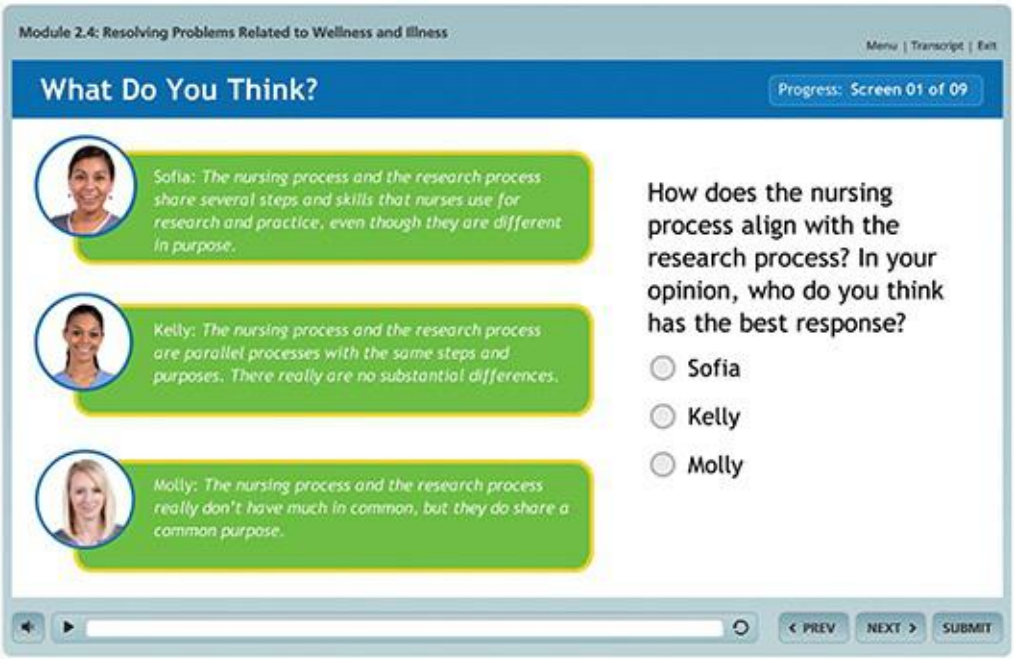
Lippincott RN to BSN Online

Lippincott RN to BSN Online: Nursing Research is a postlicensure solution for online and hybrid courses, marrying experiential learning with the trusted content in *Essentials of Nursing Research*, ninth edition.

Built around learning objectives that are aligned to the BSN Essentials and QSEN nursing curriculum standards, every aspect of Lippincott RN to BSN Online is designed to engage, challenge, and cultivate

postlicensure students.

- **Self-Paced Interactive Modules** employ key instructional design strategies—including storytelling, modeling, and case-based and problem-based scenarios—to actively involve students in learning new material and focus students' learning outcomes on real-life application.



- **Pre- and Postmodule Assessments** activate students' existing knowledge prior to engaging with the module, then assess their competency after completing the module.
- **Discussion Board Questions** create an ongoing dialogue to foster social learning.
- **Writing and Group Work Assignments** hone students' competence in writing and communication, instilling the skills needed to advance their nursing careers.
- **Collated Journal Articles** acquaint students to the body of nursing research ongoing in recent literature.
- **Case Study Assignments**, including **unfolding cases** that evolve from cases in the interactive modules, aid students in applying theory to real-life situations.
- **Best Practices in Scholarly Writing Guide** covers APA formatting and style guidelines.

Used alone or in conjunction with other instructor-created resources, Lippincott RN to BSN Online adds interactivity to courses. It also saves instructors time by keeping both textbook and course resources current and accurate through regular updates to the content.

To learn more about Lippincott RN to BSN Online, please visit http://www.nursingeducationsuccess.com/nursing-education-solutions/lippincott-rn-bsn-online/.

CLOSING NOTE

It is our hope and expectation that the content, style, and organization of this ninth edition of *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.

Denise F. Polit, PhD, FAAN
Cheryl Tatano Beck, DNSc, CNM, FAAN

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

Learning Objectives

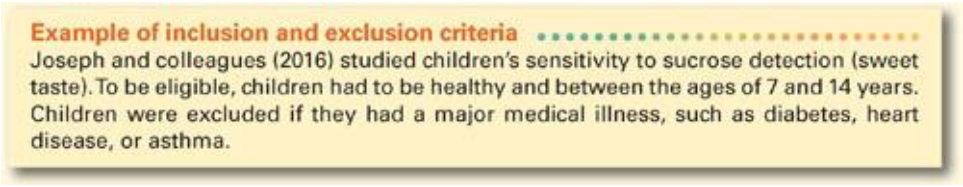
On completing this chapter, you will be able to:

- Understand why research is important in nursing
- Discuss the need for evidence-based practice
- Describe broad historical trends and future directions in nursing research
- Identify alternative sources of evidence for nursing practice
- Describe major characteristics of the positivist and constructivist paradigm
- Compare the traditional scientific method (quantitative research) with constructivist methods (qualitative research)
- Identify several purposes of quantitative and qualitative research
- Define new terms in the chapter

Key Terms

- Assumption
- Cause-probing research
- Clinical nursing research
- Clinical significance
- Constructivist paradigm
- Empirical evidence
- Evidence-based practice (EBP)
- Generalizability
- Journal club
- Nursing research
- Paradigm
- Positivist paradigm
- Qualitative research
- Quantitative research
- Research
- Research methods
- Scientific method
- Systematic review

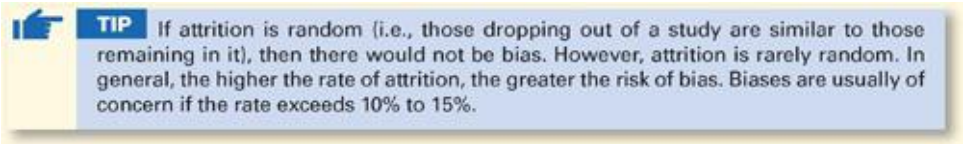
Examples help students apply content to real-life research



Example of inclusion and exclusion criteria

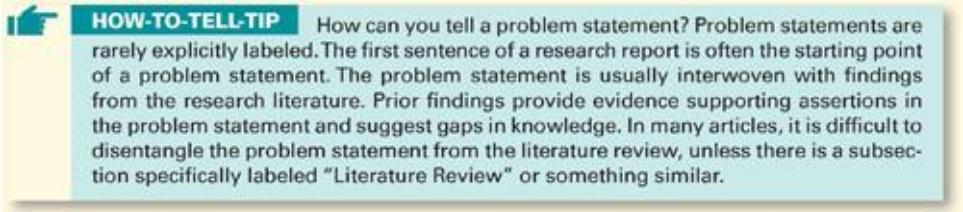
Joseph and colleagues (2016) studied children's sensitivity to sucrose detection (sweet taste). To be eligible, children had to be healthy and between the ages of 7 and 14 years. Children were excluded if they had a major medical illness, such as diabetes, heart disease, or asthma.

Tip boxes describe what is found in actual research articles



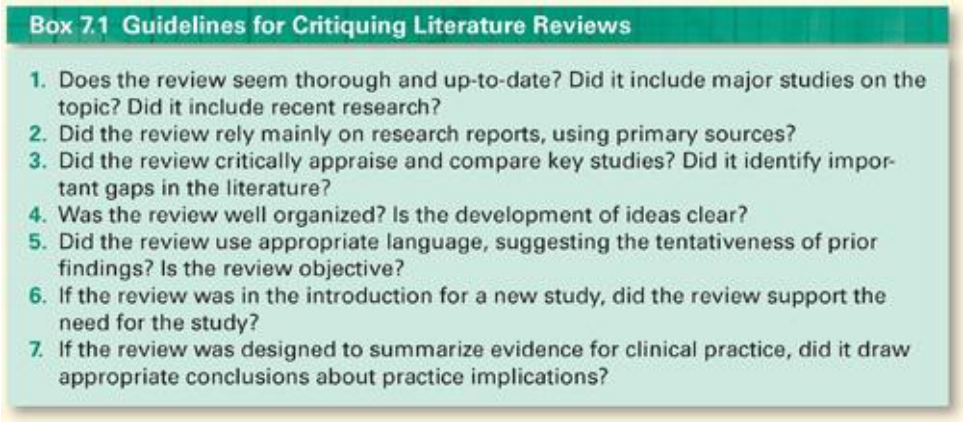
TIP If attrition is random (i.e., those dropping out of a study are similar to those remaining in it), then there would not be bias. However, attrition is rarely random. In general, the higher the rate of attrition, the greater the risk of bias. Biases are usually of concern if the rate exceeds 10% to 15%.

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



HOW-TO-TELL-TIP How can you tell a problem statement? Problem statements are rarely explicitly labeled. The first sentence of a research report is often the starting point of a problem statement. The problem statement is usually interwoven with findings from the research literature. Prior findings provide evidence supporting assertions in the problem statement and suggest gaps in knowledge. In many articles, it is difficult to disentangle the problem statement from the literature review, unless there is a subsection specifically labeled "Literature Review" or something similar.

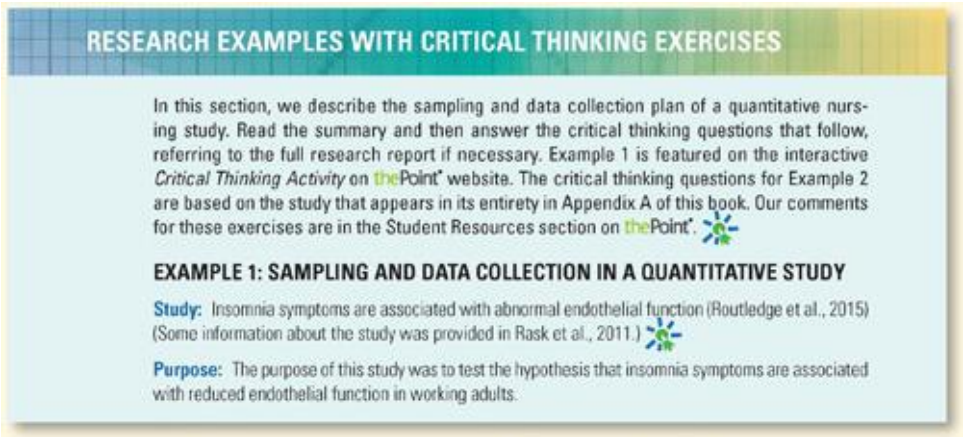
Critiquing Guidelines boxes lead students through key issues in a research article



Box 7.1 Guidelines for Critiquing Literature Reviews

1. Does the review seem thorough and up-to-date? Did it include major studies on the topic? Did it include recent research?
2. Did the review rely mainly on research reports, using primary sources?
3. Did the review critically appraise and compare key studies? Did it identify important gaps in the literature?
4. Was the review well organized? Is the development of ideas clear?
5. Did the review use appropriate language, suggesting the tentativeness of prior findings? Is the review objective?
6. If the review was in the introduction for a new study, did the review support the need for the study?
7. If the review was designed to summarize evidence for clinical practice, did it draw appropriate conclusions about practice implications?

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



RESEARCH EXAMPLES WITH CRITICAL THINKING EXERCISES

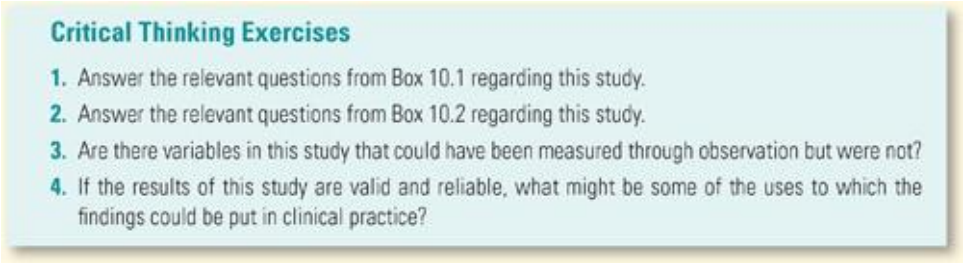
In this section, we describe the sampling and data collection plan of a quantitative nursing study. Read the summary and then answer the critical thinking questions that follow, referring to the full research report if necessary. Example 1 is featured on the interactive *Critical Thinking Activity* on thePoint® website. The critical thinking questions for Example 2 are based on the study that appears in its entirety in Appendix A of this book. Our comments for these exercises are in the Student Resources section on thePoint®.

EXAMPLE 1: SAMPLING AND DATA COLLECTION IN A QUANTITATIVE STUDY

Study: Insomnia symptoms are associated with abnormal endothelial function (Routledge et al., 2015) (Some information about the study was provided in Rask et al., 2011.)

Purpose: The purpose of this study was to test the hypothesis that insomnia symptoms are associated with reduced endothelial function in working adults.

Critical Thinking Exercises provide opportunities to practice critiquing actual research articles



Critical Thinking Exercises

1. Answer the relevant questions from Box 10.1 regarding this study.
2. Answer the relevant questions from Box 10.2 regarding this study.
3. Are there variables in this study that could have been measured through observation but were not?
4. If the results of this study are valid and reliable, what might be some of the uses to which the findings could be put in clinical practice?

Summary Points review chapter content to ensure success

Special icons alert students to important content found on thePoint® and in the accompanying Study Guide

Summary Points

- The **research design** is the overall plan for answering research questions. In quantitative studies, the design designates whether there is an intervention, the nature of any comparisons, methods for controlling confounding variables, whether there will be blinding, and the timing and location of data collection.
- Therapy, Prognosis, and Etiology questions are cause-probing, and there is a hierarchy of designs for yielding best evidence for these questions.
- Key criteria for inferring causality include the following: (1) a **cause** (independent variable) must precede an **effect** (outcome), (2) there must be a detectable relationship between a cause and an effect, and (3) the relationship between the two does not reflect the influence of a third (confounding) variable.
- A *counterfactual* is what would have happened to the same people simultaneously exposed *and* not exposed to a causal factor. The *effect* is the difference between the two. A good research design for cause-probing questions entails finding a good approximation to the idealized counterfactual.
- **Experiments** (or **randomized controlled trials [RCTs]**) involve an **intervention** (the researcher manipulates the independent variable by introducing an intervention), control (including the use of a **control group** that is not given the intervention), and **randomization/random assignment** (with participants allocated to experimental and control groups at random to make the groups comparable at the outset).
- RCTs are considered the gold standard because they come closer than any other design to meeting the criteria for inferring causal relationships.
- In **pretest–posttest designs**, data are collected both before the intervention (at **baseline**) and after it.
- In **crossover designs**, people are exposed to more than one experimental condition in random order and serve as their own controls. Crossover designs are inappropriate if there is a risk of *carryover effects*.
- The control group can undergo various conditions, including an alternative treatment, a **placebo** or pseudointervention, standard treatment ("usual care"), or a *wait-list* (*delayed treatment*) condition.

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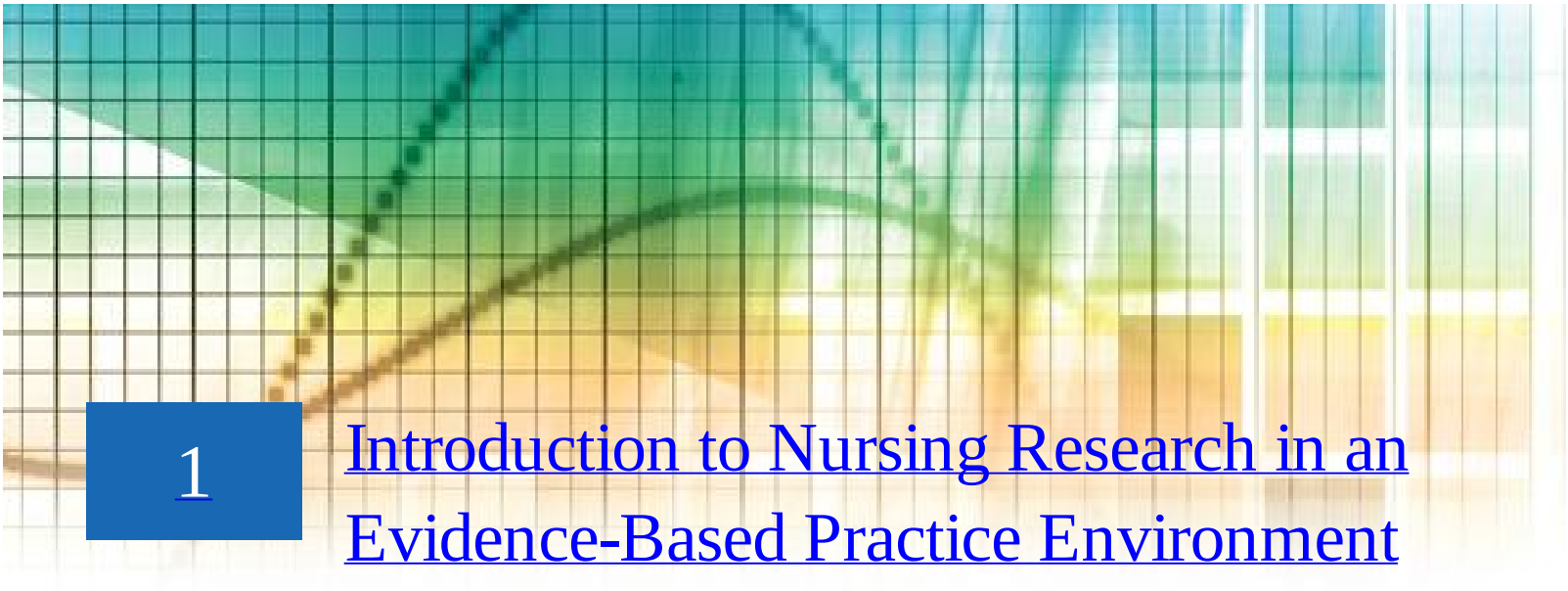
CHAPTER SUPPLEMENTS AVAILABLE ON thePoint®

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



1 Introduction to Nursing Research in an Evidence-Based Practice Environment

Learning Objectives

On completing this chapter, you will be able to:

- Understand why research is important in nursing
- Discuss the need for evidence-based practice
- Describe broad historical trends and future directions in nursing research
- Identify alternative sources of evidence for nursing practice
- Describe major characteristics of the positivist and constructivist paradigm
- Compare the traditional scientific method (quantitative research) with constructivist methods (qualitative research)
- Identify several purposes of quantitative and qualitative research
- Define new terms in the chapter

Key Terms

- Assumption
- Cause-probing research
- Clinical nursing research
- Clinical significance
- Constructivist paradigm
- Empirical evidence
- Evidence-based practice (EBP)
- Generalizability
- Journal club

- Nursing research
- Paradigm
- Positivist paradigm
- Qualitative research
- Quantitative research
- Research
- Research methods
- Scientific method
- Systematic review

NURSING RESEARCH IN PERSPECTIVE

We know that many of you readers are not taking this course because you plan to become nurse researchers. Yet, we are also 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. Although you may not yet grasp the relevance of research in your career as a nurse, we hope that you will come to see the value of nursing research during this course 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 journey in which research will play a role. We hope to prepare you to enjoy the voyage.

What Is Nursing Research?

Whether you know it or not, you have already done a lot of research. When you use the Internet to find the "best deal" on a laptop or an airfare, you start with a question (e.g., Who has the best deal for what I want?), collect the information by searching different websites, and then come to a conclusion. This "everyday research" has much in common with formal research—but, of course, there are important differences, too.

As a formal enterprise, **research** is *systematic* inquiry that uses disciplined methods to answer questions and solve problems. The ultimate goal of formal research is to gain knowledge that would be useful for many people. **Nursing research** is systematic inquiry designed to develop trustworthy evidence about issues of importance to nurses and their clients. In this book, we emphasize **clinical nursing research**, which is research designed to guide nursing practice. Clinical nursing research typically begins with questions stemming from practice problems—problems you may have already encountered.

Examples of nursing research questions

- Does a text message notification process help to reduce follow-up time for women with abnormal mammograms? (Oakley-Girvan et al., 2016)
- What are the daily experiences of patients receiving hemodialysis treatment for end-stage renal disease? (Chiaranai, 2016)

TIP You may have the impression that research is abstract and irrelevant to practicing

nurses. But nursing research is about *real* people with *real* problems, and studying those problems offers opportunities to solve or 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 and undertake research and to base their practice on evidence from research—that is, to adopt an **evidence-based practice (EBP)**. EBP, broadly defined, is the use of the best evidence in making patient care decisions. 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 and cost-effective and result in positive client outcomes.

In some countries, research plays an important 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 and nursing research. 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 in the early 1990s, only a minority of NICUs offered kangaroo care options. The adoption of this practice reflects good evidence that early skin-to-skin contact has clinical benefits and no negative side effects (Ludington-Hoe, 2011; Moore et al., 2012). Some of this evidence comes from rigorous studies by nurse researchers (e.g., Campbell-Yeo et al., 2013; Cong et al., 2009; Cong et al., 2011; Holditch-Davis et al., 2014; Lowson et al., 2015).

Roles of Nurses in Research

In the current EBP environment, every nurse is likely to engage in one or more activities along a continuum of research participation. At one end of the continuum are users or *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 design and undertake studies. At one time, most nurse researchers were academics who taught in schools of nursing, but research is increasingly being conducted by practicing nurses who want to find what works best for their clients.

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

1. Contribute an idea for a clinical inquiry
2. Assist in collecting research information

3. Offer advice to clients about participating in a study
4. Search for research evidence
5. Discuss the implications of a study in a **journal club** in your practice setting, which involves meetings to discuss research articles

In all research-related activities, nurses who have some research skills are better able than those without them to contribute to nursing and to EBP. Thus, with the research skills you gain from this book, *you* will be prepared to contribute to the advancement of nursing.

Nursing Research: Past and Present

Most people agree that research in nursing began with Florence Nightingale in the mid-19th century. Based on her skillful analysis of factors affecting soldier mortality and morbidity during the Crimean War, she was successful in bringing about changes in nursing care and in public health. For many years after Nightingale's work, however, research was absent from the nursing literature. Studies began to appear in the early 1900s but most concerned nurses' education.

In the 1950s, nursing research began to flourish. An increase in the number of nurses with advanced skills and degrees, an increase in the availability of research funding, and the establishment of the journal *Nursing Research* helped to propel nursing research. 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 client care. Nurses also began to pay attention to the utilization of research findings in nursing practice.

The 1980s brought nursing research to a new level of development. Of particular importance in the United States was the establishment in 1986 of the National Center for Nursing Research (NCNR) at the National Institutes of Health (NIH). The purpose of NCNR was to promote and financially support research projects and training relating to patient care. Nursing research was strengthened and given more visibility when NCNR was promoted to full institute status within the NIH: In 1993, the *National Institute of Nursing Research* (NINR) was established. The birth and expansion of NINR helped put nursing research more into the mainstream of research activities enjoyed by other health disciplines. Funding opportunities expanded in other countries as well.

The 1990s witnessed the birth of several more journals for nurse researchers, and specialty journals increasingly came to publish research articles. International cooperation in integrating EBP into nursing also began to develop in the 1990s. For example, Sigma Theta Tau International sponsored the first international research utilization conference, in cooperation with the faculty of the University of Toronto, in 1998.

TIP For those interested in learning more about the history of nursing research, we offer an expanded summary in the Supplement to this chapter on thePoint® website.

Future Directions for Nursing Research

Nursing research continues to develop at a rapid pace and will undoubtedly flourish in the 21st century. In

1986, NCNR had a budget of $16 million, whereas NINR funding in fiscal year 2016 was just under $150 million. Among the trends we foresee for the near future are the following:

- *Continued focus on EBP*. Encouragement for nurses to use research findings in practice is sure to continue. This means that improvements will be needed in the quality of nursing studies and in nurses' skills in locating, understanding, critiquing, and using relevant study results. Relatedly, there is an emerging interest in *translational research*—research on how findings from studies can best be translated into practice.
- *Stronger evidence through confirmatory strategies*. Practicing nurses rarely adopt an innovation on the basis of poorly designed or isolated studies. Strong research designs are essential, and confirmation is usually needed through *replication* (i.e., repeating) of studies in different clinical settings to ensure that the findings are robust.
- *Continued emphasis on systematic reviews*. **Systematic reviews** are a cornerstone of EBP and have assumed increasing importance in all health disciplines. Systematic reviews rigorously integrate research information on a topic so that conclusions about the state of evidence can be reached.
- *Expanded local research in health care settings*. Small studies designed to solve local problems will likely increase. This trend will be reinforced as more hospitals apply for (and are recertified for) Magnet status in the United States and in other countries.
- *Expanded dissemination of research findings*. The Internet and other technological advances have had a big impact on the dissemination of research information, which in turn helps to promote EBP.
- *Increased focus on cultural issues and health disparities*. The issue of health disparities has emerged as a central concern, and this in turn has raised consciousness about the cultural sensitivity of health interventions. Research must be sensitive to the beliefs, behaviors, epidemiology, and values of culturally and linguistically diverse populations.
- *Clinical significance and patient input*. Research findings increasingly must meet the test of being clinically significant, and patients have taken center stage in efforts to define **clinical significance**. A major challenge in the years ahead will involve incorporating both research evidence and patient preferences into clinical decisions.

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 Strategic Plan, launched in 2011 and updated in 2013, described five areas of focus: promoting health and preventing disease, symptom management and self-management, end-of-life and palliative care, innovation, and the development of nurse scientists (http://www.ninr.nih.gov).

TIP All websites cited in this chapter, plus additional websites with useful content relating to the foundations of nursing research, are in the Internet Resources on thePoint® website. This will allow you to simply use the "Control/Click" feature to go directly to the website, without having to type in the URL and risk a typographical error. Websites corresponding to the content of all chapters of the book are also on thePoint®.

SOURCES OF EVIDENCE FOR NURSING PRACTICE

Nurses make clinical decisions based on a large repertoire of knowledge. As a nursing student, you are gaining skills on how to practice nursing 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 carry on throughout your career.

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

Tradition and Authority

Some nursing interventions are based on untested traditions, customs, and "unit culture" rather than on sound evidence. Indeed, a recent analysis suggests that some "sacred cows" (ineffective traditional habits) persist even in a health care center recognized as a leader in EBP (Hanrahan et al., 2015). Another common source of knowledge is an authority, a person with specialized expertise. Reliance on authorities (such as nursing faculty or textbook authors) is unavoidable. Authorities, however, are not infallible—particularly if their expertise is based primarily on personal experience; yet, their knowledge is often unchallenged.

Example of "myths" in nursing textbooks

One study suggests that nursing textbooks may contain many "myths." In their analysis of 23 widely used undergraduate psychiatric nursing textbooks, Holman and colleagues (2010) found that all books contained at least one unsupported assumption (myth) about loss and grief—i.e., assumptions not supported by current research evidence. And many evidence-based findings about grief and loss failed to be included in the textbooks.

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. As an authority figure, he 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 clearly demonstrated that this sleeping position is associated with heighted risk of sudden infant death syndrome (SIDS). In their systematic review of 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.

Clinical Experience and Trial and Error

Clinical experience is a functional source of knowledge. 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 involves trying alternatives successively until a solution to a problem is found. Trial and error can be practical, but the method tends to be haphazard, and solutions may be idiosyncratic.

Assembled Information

In making clinical decisions, health care professionals also rely on information that has been assembled for various purposes. For example, local, national, and international *benchmarking data* provide information on such issues as the rates of using various procedures (e.g., rates of cesarean deliveries) or rates of clinical problems (e.g., nosocomial infections). *Quality improvement and risk data*, such as medication error reports, can be used to assess practices and determine the need for practice changes. Such sources offer useful information but provide no mechanism to actually guide improvements.

Disciplined Research

Disciplined research is considered the best method of acquiring reliable knowledge that humans have developed. 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. However, nursing will always be a rich blend of art and science.

PARADIGMS AND METHODS FOR NURSING RESEARCH

The questions that nurse researchers ask and the methods they use to answer their questions spring from a researcher's view of how the world "works." A **paradigm** is a worldview, a general perspective on the world's complexities. Disciplined inquiry in nursing has been conducted mainly within two broad paradigms. This section describes the two paradigms and outlines the research methods associated with them.

The Positivist Paradigm

The paradigm that dominated nursing research for decades is called *positivism*. Positivism is rooted in 19th century thought, guided by such philosophers as Newton and Locke. Positivism is a reflection of a broad cultural movement (modernism) that emphasizes the rational and scientific.

As shown in Table 1.1, a fundamental assumption of positivists is that there is a reality *out there* that can be studied and known. An **assumption** is a principle that is believed to be true without verification. Adherents of positivism assume that nature is ordered and regular and that a reality exists independent of human observation. In other words, the world is assumed not to be merely a creation of the human mind. The assumption of *determinism* refers to the positivists' belief that phenomena are not haphazard but rather have antecedent causes. If a person has a stroke, a scientist in a positivist tradition assumes that

there must be one or more reasons that can be potentially identified. Within the **positivist paradigm**, research activity is often aimed at understanding the underlying causes of natural phenomena.

TABLE 1.1 Major Assumptions of the Positivist and Constructivist Paradigms

Type of Assumption	Positivist Paradigm	Constructivist Paradigm
The nature of reality	Reality exists; there is a real world driven by real, natural causes.	Reality is multiple and subjective, mentally constructed by individuals.
Relationship between researcher and those being researched	The researcher is independent from those being researched.	The researcher interacts with those being researched; findings are the creation of the interactive process.
The role of values in the inquiry	Values and biases are to be held in check; objectivity is sought.	Subjectivity and values are inevitable and desirable.
Best methods for obtaining evidence	• Deductive processes → hypotheses testing • Emphasis on discrete, specific concepts • Focus on the objective and quantifiable • Corroboration of researchers' predictions • Fixed, prespecified design • Controls over context • Measured, quantitative information • Statistical analysis • Seeks generalizations	• Inductive processes → hypothesis generation • Emphasis on the whole • Focus on the subjective and nonquantifiable • Emerging insight grounded in participants' experiences • Flexible, emergent design • Context-bound, contextualized • Narrative information • Qualitative analysis • Seeks in-depth understanding

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).

Because of their belief in objective 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 phenomena being studied and relationships among them.

Strict positivist thinking has been challenged, and few researchers adhere to the tenets of pure positivism. Postpositivists still believe in reality and seek to understand it, but they recognize the impossibility of total objectivity. Yet, they see 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 Constructivist Paradigm

The **constructivist paradigm** (sometimes called the *naturalistic paradigm*) began as a countermovement to positivism with writers such as Weber and Kant. The constructivist paradigm is a major alternative system for conducting research in nursing. Table 1.1 compares four major assumptions of the positivist and constructivist paradigms.

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. Naturalists 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.

Paradigms and Methods: Quantitative and Qualitative Research

Research methods are the techniques researchers use to structure a study and to gather and analyze relevant information. The two paradigms correspond to different methods of developing evidence. A key methodologic distinction is between **quantitative research**, which is most closely allied with positivism, and **qualitative research**, which is associated with constructivist inquiry—although positivists sometimes undertake qualitative studies, and constructivist researchers sometimes collect quantitative information. This section gives an overview of the methods linked to the two alternative paradigms.

The Scientific Method and Quantitative Research

The traditional, positivist **scientific method** involves using a set of orderly procedures to gather 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 objective 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 directly or indirectly through the senses rather than through personal beliefs or hunches. Evidence for a quantitative study is gathered systematically, using formal instruments to collect needed information. Usually (but not always) the information is *quantitative*—that is, 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 research situation; the ability to generalize research findings to individuals other than those who took 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 whether stress is high or low, or higher under certain conditions or for some people. Physiologic phenomena such as blood pressure and temperature can be measured with accuracy and precision, but the same cannot be said of most psychological phenomena, such as stress or resilience.

Another issue is that nursing research focuses on human beings, who are inherently complicated and diverse. The traditional scientific method typically focuses on a relatively small set of phenomena (e.g., weight gain, depression) in a study. Complexities tend to be controlled and, if possible, eliminated rather than studied directly, and this narrowness of focus can sometimes obscure insights. Relatedly, quantitative

research within the positivist paradigm has sometimes been accused of a narrowness of vision that does not capture the full breadth of human experience.

TIP Students often find quantitative studies more intimidating and difficult 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.

Constructivist Methods and Qualitative Research

Researchers in constructivist traditions emphasize the inherent complexity of humans, their ability to shape and create their own experiences, and the idea that truth is a composite of realities. Consequently, constructivist studies are heavily focused on understanding the human experience as it is lived, through the careful collection and analysis of *qualitative* materials that are narrative and subjective.

Researchers who reject the traditional scientific method believe that a major limitation is that it is *reductionist*—that is, it reduces human experience to only the few concepts under investigation, and those concepts are defined in advance by researchers 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 of information and its analysis 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 varied dimensions (or *themes*) of a complicated phenomenon. Findings from qualitative research are typically 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 potential limitation involves the subjectivity of constructivist inquiry, which sometimes raises concerns about the idiosyncratic nature of the conclusions. Would two constructivist researchers studying the same phenomenon in similar settings arrive at similar conclusions? The situation is magnified by the fact that most constructivist studies involve a small group of participants. Thus, the generalizability of findings from constructivist inquiries is an issue of potential concern.

TIP Researchers usually do not discuss or even mention the underlying paradigm of their studies in their reports. The paradigm provides context, without being explicitly referenced.

Multiple Paradigms and Nursing Research

Paradigms are lenses that help to sharpen researchers' focus on phenomena of interest, not blinders that

limit curiosity. We think that the emergence of alternative paradigms for studying nursing problems is a desirable trend that can maximize the breadth of new evidence for practice. Nursing knowledge would be thin if it were not for a rich array of 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. Both quantitative and qualitative 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 researchers in both traditions gather and analyze evidence gathered empirically, that is, through their senses.
- *Reliance on human cooperation*. Human cooperation is essential in both quantitative and qualitative research. To understand people's characteristics and experiences, researchers must encourage people to participate in the study *and* to speak candidly.
- *Ethical constraints*. Research with human beings is guided by ethical principles that sometimes interfere with research goals. Ethical dilemmas often confront researchers, regardless of paradigms or methods.
- *Fallibility*. Virtually all studies have limitations. Every research question can be addressed in different ways, and inevitably, there are tradeoffs. Financial constraints are often an issue, but limitations exist even in well-funded research. This means that *no single study can ever definitively answer a research question*. The fallibility of any single study makes it important to understand and critique researchers' methods when evaluating evidence quality.

Thus, despite philosophic and methodologic differences, researchers using the traditional scientific method or constructivist methods share basic goals and face many similar challenges. The selection of an appropriate method depends not only on researchers' philosophy and worldview but also on the research question. If a researcher asks, "What are the effects of cryotherapy on nausea and oral mucositis in patients undergoing chemotherapy?" the researcher needs to examine effects through the careful quantitative assessment of patients. 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 such a process. Personal worldviews of researchers help to shape their questions.

In reading about the alternative paradigms, you likely were more attracted to one of the two paradigms —the one that corresponds most closely 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.

HOW-TO-TELL TIP How can you tell if a study is quantitative or qualitative? As you progress through this book, you should be able to identify most studies as quantitative versus qualitative based simply on the study's title or on terms in the summary at the beginning of an article. 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. Quantitative studies typically have several tables with numbers and statistical information. 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). 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 different systems have been devised to classify different research goals. We describe two such classification systems—not because it is important for you to categorize a study as having one purpose or the other but rather because this will help us to illustrate the broad range of questions that have intrigued nurses and to further show differences between quantitative and qualitative inquiry.

TIP Sometimes a distinction is made between basic and applied research. *Basic research* is appropriate for discovering general principles of human behavior and biophysiologic processes. *Applied research* is designed to examine how these principles can be used to solve problems in nursing practice.

Research to Achieve Varying Levels of Explanation

One way to classify research purposes is by the extent to which studies are designed to provide explanations. A fundamental distinction that is especially relevant in quantitative research is between studies whose primary goal is to *describe* phenomena and those that are **cause-probing**—that is, studies designed to illuminate the underlying causes of phenomena.

Using a descriptive/explanatory framework, the specific purposes of nursing research include identification, description, exploration, explanation, and prediction/control. When researchers state their study purpose, they often use these terms (e.g., The purpose of this study was to *explore* . . .). For each purpose, various types of question are addressed—some more amenable to quantitative than to qualitative inquiry, and vice versa.

Identification and Description

In quantitative research, researchers begin with a phenomenon that has been previously studied or defined. Qualitative researchers, by contrast, sometimes study phenomena about which little is known. In some cases, so little is known that the phenomenon has yet to be clearly identified or named or has been inadequately defined. The in-depth, probing nature of qualitative research is well suited to answering such questions as "What is this phenomenon?" and "What is its name?" (Table 1.2).

Quantitative example of description

Palese and colleagues (2015) conducted a study to describe the average healing time of stage II

pressure ulcers. They found that it took approximately 23 days to achieve complete reepithelialization.

TABLE 1.2 Purposes on the Descriptive–Explanatory Continuum and Types of Research Questions for Quantitative and Qualitative Research

Purpose	Types of Questions: Quantitative Research	Types of Questions: Qualitative Research
Identification		What is this phenomenon? What is its name?
Description	How prevalent is the phenomenon? How often does the phenomenon occur?	What are the dimensions or characteristics of the phenomenon? What is important about the phenomenon?
Exploration	What factors are related to the phenomenon? What are the antecedents of the phenomenon?	What is the full nature of the phenomenon? What is really going on here? What is the process by which the phenomenon evolves?
Prediction and control	If phenomenon X occurs, will phenomenon Y follow? Can the phenomenon be prevented or controlled?	
Explanation	What is the underlying cause of the phenomenon? Does the theory explain the phenomenon?	Why does the phenomenon exist? What does the phenomenon mean? How did the phenomenon occur?

Qualitative example of identification

Stapleton and Pattison (2015) studied the experience of men with advanced cancer in relation to their perceptions of masculinity. Through in-depth interviews, the researchers identified a new aspect of masculinity, which they called *thwarted ambition*.

Description of phenomena is an important purpose of research. In descriptive studies, researchers count, delineate, and classify. Nurse researchers have described a wide variety of phenomena, such as patients' stress, health beliefs, and so on. Quantitative description focuses on the prevalence, size, and measurable aspects of phenomena. Qualitative researchers describe the nature, dimensions, and salience of phenomena, as shown in Table 1.2.

Exploration

Exploratory research begins with a phenomenon of interest; but rather than simply describing it, exploratory researchers examine the nature of the phenomenon, the manner in which it is manifested, and other factors to which it is related—including factors that might be *causing* it. For example, a *descriptive* quantitative study of patients' preoperative stress might document how much stress patients experience. An *exploratory* study might ask: What factors increase or lower a patient's stress? Qualitative methods can be used to explore the nature of little understood phenomena and to shed light on the ways in which a phenomenon is expressed.

Qualitative example of exploration

Wazneh and colleagues (2016) used in-depth interviews to explore the extent to which the contents of a special backpack called the "Venturing Out Pack" met the practical, psychosocial, and information

needs of young adults being treated for cancer.

Explanation

Explanatory research seeks to understand the underlying causes or full nature of a phenomenon. In quantitative research, *theories* or prior findings are used deductively to generate hypothesized explanations that are tested statistically. Qualitative researchers search for explanations about how or why a phenomenon exists or what a phenomenon means as a basis for *developing* a theory that is grounded in rich, in-depth, experiential evidence.

Quantitative example of explanation

Golfenshtein and Drach-Zahavy (2015) tested a theoretical model to explain the role of patients' attributions in nurses' regulation of emotions in pediatric hospital wards.

Prediction and Control

Many phenomena defy explanation, yet it is often possible to predict or control them based on research evidence. For example, research has shown that the incidence of Down syndrome in infants increases with maternal age. We can predict that a woman aged 40 years is at higher risk of bearing a child with Down syndrome than a woman aged 25 years. We can attempt to influence the outcome by educating women about the risks and offering amniocentesis to women older than 35 years of age. The ability to predict and control in this example does not rely on an explanation of what *causes* older women to be at a higher risk. In many quantitative studies, prediction and control are key goals. Although explanatory studies are powerful, studies whose purpose is prediction and control are also critical to EBP.

Quantitative example of prediction

Jain and colleagues (2016) conducted a study to assess whether scores on a measure of neurological impairment at hospital arrival, among patients who had a transient ischemic attack or a stroke, predicted their functional outcomes, such as ambulatory status at hospital discharge.

Research Purposes Linked to Evidence-Based Practice

Another system for classifying studies has emerged in efforts to communicate EBP-related purposes (e.g., DiCenso et al., 2005; Guyatt et al., 2008; Melnyk & Fineout-Overholt, 2015). Table 1.3 identifies some of the questions relevant for each EBP purpose and offers an actual nursing research example. In this classification scheme, the various purposes can best be addressed with quantitative research, with the exception of the last category (meaning/process), which requires qualitative research.

TABLE 1.3 Research Purposes Linked to Evidence-Based Practice (EBP) and Key Research Questions

EBP Purpose	Key Research Question	Nursing Research Example
Therapy/Intervention	What therapy or intervention will result in better health outcomes or prevent an adverse health outcome?	Kwon and colleagues (2016) tested the effects of an acupressure wristband for postoperative nausea and vomiting among patients undergoing thyroidectomy.
Diagnosis/Assessment	What test or assessment procedure will yield accurate diagnoses or assessments of critical patient conditions and outcomes?	Sitzer (2016) developed and evaluated an automated self-assessment questionnaire for assessing the risk of falling in hospitalized patients.
Prognosis	Does exposure to a disease or health problem increase the risk of subsequent adverse consequences?	Storey and Von Ah (2015) studied the prevalence and impact of hyperglycemia on hospitalized leukemia patients, in terms of such outcomes as neutropenia, infection, and length of hospital stay.
Etiology/Cause/Harm	What factors cause or contribute to the risk of a health problem or disease?	Hagerty and colleagues (2015) undertook a study to identify risk factors for catheter-associated urinary tract infections in critically ill patients with subarachnoid hemorrhage. The risk factors examined included patients' blood sugar levels, patient age, and levels of anemia requiring transfusion.
Meaning/Process	What is the meaning of life experiences, and what is the process by which they unfold?	Pieters (2016) studied resilience as a multidimensional process among older women who had recently completed treatment for early-stage breast cancer.

Therapy, Treatment, or Intervention

Studies with a therapy purpose seek to identify effective treatments for improving 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 effect behavioral changes (e.g., nurse-led smoking cessation interventions). Intervention research plays a critical role in EBP.

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. High-quality instruments with documented accuracy are essential both for clinical practice and for research.

Prognosis

Studies of prognosis examine the consequences of a disease or health problem, explore factors that can modify the prognosis, and examine when (and for which types of people) the consequences 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.

Etiology (Causation) and Harm

It is difficult to prevent harm or treat health problems if we do not know what causes them. 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.

Meaning and Processes

Many health care activities (e.g., motivating people to comply with treatments, providing sensitive advice to patients, designing appealing interventions) can greatly benefit from understanding the clients' perspectives. Research that offers evidence about what health and illness mean to clients, what barriers they face to positive health practices, and what processes they experience in a transition through a health care crisis is important to evidence-based nursing practice.

TIP Most EBP-related purposes (except *diagnosis* and *meaning*) involve *cause-probing* research. For example, research on interventions 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.

ASSISTANCE FOR CONSUMERS OF NURSING RESEARCH

We hope that this book will help you develop skills that will allow you to read, appraise, and use nursing studies and to appreciate nursing research. In each chapter, we present information relating to methods used by nurse researchers and provide guidance in several ways. First, we offer tips on 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 critiquing various aspects of a study. 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. 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 real research examples of both quantitative and qualitative studies. These activities also challenge you to think about how the findings from these studies could be used in nursing practice. Answers to many of these questions are on thePoint® website. Some of these examples are featured in our interactive *Critical Thinking Activity* on thePoint® website. Some of the journal articles are found in the appendices. The full journal article for studies identified with ** in the references list of each chapter are available on thePoint® website.

Box 1.1 Questions for a Preliminary Overview of a Research Report

1. How relevant is the research problem to the actual practice of nursing?
2. Was the study quantitative or qualitative?
3. What was the underlying purpose (or purposes) of the study—identification, description, exploration, explanation, or prediction/control? Does the purpose correspond to an EBP focus such as therapy/treatment, diagnosis, prognosis, etiology/harm, or meaning?
4. 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 in my clinical work?

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, referring to the full research reports if necessary. 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.

TIP Examples 1 and 2 are also featured in our interactive *Critical Thinking Activity* on thePoint® website, where you can record, print, and e-mail your responses to your instructor. Our comments for the questions in Examples 3 and 4 are in the Student Resources section on thePoint®.

EXAMPLE 1: QUANTITATIVE RESEARCH

Study: Psychological outcomes after a sexual assault video intervention: A randomized trial (Miller et al., 2015)

Study Purpose: The purpose of the study was to test whether a brief video-based intervention had positive effects on the mental health of victims of a sexual assault. The intervention provided psychoeducation and information about coping strategies to survivors at the time of a sexual assault nurse examination.

Study Methods: Female sexual assault victims who received forensic examinations within 72 hours of their victimization were assigned to one of two groups: (1) those receiving standard care plus the video intervention and (2) those receiving care as usual, without the video. A total of 164 women participated in the study. They completed mental health assessments 2 weeks and 2 months after the forensic examination.

Key Findings: The researchers found that women in both groups had lower anxiety at the follow-up assessments. However, women in the special intervention group had significantly lower levels of anxiety symptoms than those in the usual care group at both follow-ups.

Conclusions: Miller and colleagues (2015) concluded that forensic nurses have an opportunity to intervene immediately after a sexual assault with an effective and inexpensive intervention.

Critical Thinking Exercises

1. Answer the relevant questions from Box 1.1 regarding this study.
2. Also consider the following targeted questions, which may assist you in assessing aspects of the study's merit:

a. Why do you think levels of anxiety improved over time in both the intervention and standard care groups?
b. Could this study have been undertaken as a qualitative study? Why or why not?

EXAMPLE 2: QUALITATIVE RESEARCH

Study: The pain experience of patients hospitalized with inflammatory bowel disease: A phenomenological study (Bernhofer et al., 2015)

Study Purpose: The purpose of this study was to understand the unique experience of pain in hospitalized patients with an admitting diagnosis of inflammatory bowel disease (IBD).

Study Methods: Sixteen men and women with diverse backgrounds (e.g., age, length of IBD diagnosis) were recruited from two colorectal units of a large academic medical center. Patients participated in interviews that lasted about a half hour. The interviews, which were audiotaped and then transcribed, focused on what the patients' pain experiences were like in the hospital.

Key Findings: Five recurring themes emerged in the analysis of the interview data: (1) feeling discredited and misunderstood, (2) a desire to dispel the stigma, (3) frustration with constant pain, (4) a need for caregiver knowledge and understanding, and (5) nurses as the connector between the patient and physicians. Here is an excerpt from an interview that illustrates the second theme on stigma: "I've been judged on numerous amounts of occasions in regards to them thinking that I'm just simply seeking out some kind of pain medication when in reality, I'm seeking out to feel better, to make the pain go away" (p. 5).

Conclusions: The researchers concluded that nurses caring for hospitalized patients with IBD could provide better pain management if they understand the issues highlighted in these themes.

Critical Thinking Exercises

1. Answer the relevant questions from Box 1.1 regarding this study.
2. Also consider the following targeted questions, which may assist you in assessing aspects of the study's merit:
   a. Why do you think that the researchers audiotaped and transcribed their in-depth interviews with study participants?
   b. 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 of Swenson and colleagues' (2016) study ("Parents' use of praise and criticism in a sample of young children seeking mental health services") in Appendix A of this book.

Critical Thinking Exercises

1. Answer the relevant questions from Box 1.1 regarding this study.
2. Also consider the following targeted questions:
   a. Could this study have been undertaken as a qualitative study? Why or why not?
   b. Who provided some financial support for this research? (This information appears on the first page of the report.)

EXAMPLE 4: QUALITATIVE RESEARCH IN APPENDIX B

- Read the abstract and the introduction of Beck and Watson's (2010) study ("Subsequent childbirth after a previous traumatic birth") in Appendix B of this book.

Critical Thinking Exercises

1. Answer the relevant questions from Box 1.1 regarding this study.
2. Also consider the following targeted questions:
   a. What gap in the existing research was the study designed to fill?
   b. Was Beck and Watson's study conducted within the positivist paradigm or the constructivist paradigm? Provide a rationale for your choice.

WANT TO KNOW MORE?

A wide variety of resources to enhance your learning and understanding of this chapter are available on thePoint®.

- Interactive Critical Thinking Activity
- Chapter Supplement on The History of Nursing Research
- Answers to the Critical Thinking Exercises for Examples 3 and 4
- Internet Resources with useful websites for Chapter 1
- A Wolters Kluwer journal article in its entirety—the study described as Example 1 on pp. 15-16.

Additional study aids, including eight journal articles and related questions, are also available in *Study Guide for Essentials of Nursing Research, 9e*.

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 clients.

- 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, the focus has been on **clinical nursing research**—that is, on problems relating to clinical practice.
- The National Institute of Nursing Research (NINR), established at the U.S. National Institutes of Health in 1993, affirms the stature of nursing research in the United States.
- Future emphases of nursing research are likely to include EBP projects, *replications* of research, research integration through **systematic reviews**, expanded dissemination efforts, increased focus on health disparities, and a focus on 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 broad **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 related assumption of *determinism* refers to the belief that phenomena result from prior causes and are not haphazard.
- 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.
- **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.
- 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 the description/explanation continuum include identification, description, exploration, explanation, and prediction/control.
- Many nursing studies can also be classified in terms of an EBP-related aim: therapy/treatment/intervention, diagnosis and assessment, prognosis, etiology and harm, and meaning and process.

REFERENCES FOR CHAPTER 1

Bernhofer, E., Masina, V., Sorrell, J., & Modic, M. (2015). The pain experience of patients hospitalized with inflammatory bowel disease: A phenomenological study. *Gastroenterology Nursing*. Advance online publication.

*Campbell-Yeo, M., Johnston, C., Benoit, B., Latimer, M., Vincer, M., Walker, C., . . . Caddell, K. (2013). Trial of repeated analgesia with kangaroo mother care (TRAKC trial). *BMC Pediatrics*, *13*, 182.

Chiaranai, C. (2016). The lived experience of patients receiving hemodialysis treatment for end-stage renal disease: A qualitative study. *The Journal of Nursing Research*, *24*, 101–108.

*Cong, X., Ludington-Hoe, S., McCain, G., & Fu, P. (2009). Kangaroo care modifies preterm infant heart rate variability in response to heel stick pain: Pilot study. *Early Human Development, 85*, 561–567.

Cong, X., Ludington-Hoe, S., & Walsh, S. (2011). Randomized crossover trial of kangaroo care to reduce biobehavioral pain responses in preterm infants: A pilot study. *Biological Research for Nursing*, *13*, 204–216.

DiCenso, A., Guyatt, G., & Ciliska, D. (2005). *Evidence-based nursing: A guide to clinical practice*. St. Louis, MO: Elsevier Mosby.

*Gilbert, R., Salanti, G., Harden, M., & See, S. (2005). Infant sleeping position and the sudden infant death syndrome: Systematic review of observational studies and historical review of recommendations from 1940 to 2002. *International Journal of Epidemiology*, *34*, 874–887.

Golfenshtein, N., & Drach-Zahavy, A. (2015). An attribution theory perspective on emotional labour in nurse-patient encounters: A nested cross-sectional study in paediatric settings. *Journal of Advanced Nursing*, *71*, 1123–1134.

Guyatt, G., Rennie, D., Meade, M., & Cook, D. (2008). *Users' guides to the medical literature: Essentials of evidence-based clinical practice* (2nd ed.). New York, NY: McGraw Hill.

Hagerty, T., Kertesz, L., Schmidt, J., Agarwal, S., Claassen, J., Mayer, S., . . . Shang, J. (2015). Risk factors for catheter-associated urinary tract infections in critically ill patients with subarachnoid hemorrhage. *Journal of Neuroscience Nursing*, *47*, 51–54.

Hanrahan, K., Wagner, M., Matthews, G., Stewart, S., Dawson, C., Greiner, J., . . . Williamson, A. (2015). Sacred cow gone to pasture: A systematic evaluation and integration of evidence-based practice. *Worldviews on Evidence-Based Nursing*, *12*, 3–11.

*Holditch-Davis, D., White-Traut, R., Levy, J., O'Shea, T., Geraldo, V., & David, R. (2014). Maternally administered interventions for preterm infants in the NICU: Effects on maternal psychological distress and mother-infant relationship. *Infant Behavior & Development*, *37*, 695–710.

Holman, E., Perisho, J., Edwards, A., & Mlakar, N. (2010). The myths of coping with loss in undergraduate psychiatric nursing books. *Research in Nursing & Health*, *33*, 486–499.

Jain, A., van Houten, D., & Sheikh, L. (2016). Retrospective study on National Institutes of Health Stroke Scale as a predictor of patient recovery after stroke. *Journal of Cardiovascular Nursing*, *31*, 69–72.

Kwon, J. H., Shin, Y., & Juon, H. (2016). Effects of Nei-Guan (P6) acupressure wristband: On nausea, vomiting, and retching in women after thyroidectomy. *Cancer Nursing*, *39*, 61–66.

*Lowson, K., Offer, C., Watson, J., McGuire, B., & Renfrew, M. (2015). The economic benefits of increasing kangaroo skin-to-skin care and breastfeeding in neonatal units: Analysis of a pragmatic intervention in clinical practice. *International Breastfeeding Journal*, *10*, 11.

Ludington-Hoe, S. M. (2011). Thirty years of Kangaroo Care science and practice. *Neonatal Network*, *30*, 357–362.

Melnyk, B. M., & Fineout-Overholt, E. (2015). *Evidence-based practice in nursing & healthcare: A guide to best practice* (3rd ed.). Philadelphia, PA: Lippincott Williams & Wilkins.

**Miller, K., Cranston, C., Davis, J., Newman, E., & Resnick, H. (2015). Psychological outcomes after a sexual assault video intervention: A randomized trial. *Journal of Forensic Nursing*, *11*, 129–136.

*Moore, E., Anderson, G., Bergman, N., & Dowswell, T. (2012). Early skin-to-skin contact for mothers and their healthy newborn infants. *Cochrane Database of Systematic Reviews*, (5), CD003519.

Oakley-Girvan, I., Londono, C., Canchola, A., & Watkins Davis, S. (2016). Text messaging may improve abnormal mammogram follow-up in Latinas. *Oncology Nursing Forum, 43*, 36–43.

Palese, A., Luisa, S., Ilenia, P., Laquintana, D., Stinco, G., & Di Giulio, P. (2015). What is the healing time of stage II pressure ulcers? Findings from a secondary analysis. *Advances in Skin & Wound Care*, *28*, 69–75.

Pieters, H. C. (2016). "I'm still here": Resilience among older survivors of breast cancer. *Cancer Nursing*, *39*, E20–E28.

Sitzer, V. (2016). Development of an automated self-assessment of Fall Risk Questionnaire for hospitalized patients. *Journal of Nursing Care Quality*, *31*, 46–53.

Spock, B. (1979). *Baby and child care*. New York, NY: Dutton.

Stapleton, S., & Pattison, N. (2015). The lived experience of men with advanced cancer in relation to their perceptions of masculinity: A qualitative phenomenological study. *Journal of Clinical Nursing*, *24*, 1069–1078.

Storey, S., & Von Ah, D. (2015). Prevalence and impact of hyperglycemia on hospitalized leukemia patients. *European Journal of Oncology Nursing*, *19*, 13–17.

Wazneh, L., Tsimicalis, A., & Loiselle, C. (2016). Young adults' perceptions of the Venturing Out Pack program as a tangible cancer support service. *Oncology Nursing Forum, 43*, E34–E42.

*A link to this open-access article is provided in the Internet Resources section on thePoint® website.

**This journal article is available on thePoint® for this chapter.

2 Fundamentals of Evidence-Based Nursing Practice

Learning Objectives

On completing this chapter, you will be able to:

- Distinguish research utilization and evidence-based practice (EBP) and discuss their current status within nursing
- Identify several resources available to facilitate EBP in nursing practice
- List several models for implementing EBP
- Discuss the five major steps in undertaking an EBP effort for individual nurses
- Identify the components of a well-worded clinical question and be able to frame such a question
- Discuss broad strategies for undertaking an EBP project at the organizational level
- Distinguish EBP and quality improvement (QI) efforts
- Define new terms in the chapter

Key Terms

- Clinical practice guideline
- Cochrane Collaboration
- Evidence hierarchy
- Evidence-based practice
- Implementation potential
- Meta-analysis
- Metasynthesis
- Pilot test
- Quality improvement (QI)
- Research utilization (RU)
- Systematic review

Learning about research methods provides a foundation for evidence-based practice (EBP) in nursing. This book will help you to develop methodologic skills for reading research articles and evaluating

research evidence. Before we elaborate on methodologic techniques, we discuss key aspects of EBP to further help you understand the key role that research now plays in nursing.

BACKGROUND OF EVIDENCE-BASED NURSING PRACTICE

This section provides a context for understanding evidence-based nursing practice and two closely related concepts: research utilization and knowledge translation.

Definition of Evidence-Based Practice

Pioneer Sackett and his colleagues (2000) defined **evidence-based practice** as "the integration of best research evidence with clinical expertise and patient values" (p. 1). The definition proposed by Sigma Theta Tau International (2008) is as follows: "The process of shared decision-making between practitioner, patient, and others significant to them based on research evidence, the patient's experiences and preferences, clinical expertise or know-how, and other available robust sources of information" (p. 57). A key ingredient in EBP is the effort to personalize "best evidence" to a specific patient's needs within a particular clinical context.

A basic feature of EBP as a clinical problem-solving strategy is that it de-emphasizes decisions based on custom, authority, or ritual. A core aspect of EBP is on identifying the best available research evidence and *integrating* it with other factors in making clinical decisions. Advocates of EBP do not minimize the importance of clinical expertise. Rather, they argue that evidence-based decision making should integrate best research evidence with clinical expertise, patient preferences, and local circumstances. EBP involves efforts to personalize evidence to fit a specific patient's needs and a particular clinical situation.

Because research evidence can provide valuable insights about human health and illness, nurses must be lifelong learners who have the skills to search for, understand, and evaluate new information about patient care and the capacity to adapt to change.

Research Utilization

Research utilization (RU) is the use of findings from studies in a practical application that is unrelated to the original research. In RU, the emphasis is on translating new knowledge into real-world applications. EBP is a broader concept than RU because it integrates research findings with other factors, as just noted. Also, whereas RU begins with the research itself (e.g., How can I put this new knowledge to good use in my clinical setting?), the starting point in EBP is usually a clinical question (e.g., What does the evidence say is the best approach to solving this clinical problem?).

During the 1980s, RU emerged as an important topic. In education, nursing schools began to include courses on research methods so that students would become skillful research consumers. In research, there was a shift in focus toward clinical nursing problems. Yet, concerns about the limited use of research evidence in the delivery of nursing care continued to mount.

The need to reduce the gap between research and practice led to formal RU projects, including the groundbreaking *Conduct and Utilization of Research in Nursing (CURN) Project*, a 5-year project undertaken by the Michigan Nurses Association in the 1970s. CURN's objectives were to increase the use

of research findings in nurses' daily practice by disseminating current findings and facilitating organizational changes needed to implement innovations (Horsley et al., 1978). The CURN Project team concluded that RU by practicing nurses was feasible but only if the research is relevant to practice and if the results are broadly disseminated.

During the 1980s and 1990s, RU projects were undertaken by numerous hospitals and organizations. During the 1990s, however, the call for RU began to be superseded by the push for EBP.

The Evidence-Based Practice Movement

One keystone of the EBP movement is the Cochrane Collaboration, which was founded in the United Kingdom based on the work by British epidemiologist Archie Cochrane. Cochrane published a book in the 1970s that drew attention to the shortage of solid evidence about the effects of health care. He called for efforts to make research summaries about interventions available to health care providers. This led to the development of the Cochrane Center in Oxford in 1993 and the international **Cochrane Collaboration**, with centers now established in locations throughout the world. Its aim is to help providers make good decisions by preparing and disseminating systematic reviews of the effects of health care interventions.

At about the same time that the Cochrane Collaboration was started, a group from McMaster Medical School in Canada developed a learning strategy they called *evidence-based medicine*. The evidence-based medicine movement, pioneered by Dr. David Sackett, has broadened to the use of best evidence by *all* health care practitioners. EBP has been considered a major paradigm shift in health care education and practice. With EBP, skillful clinicians can no longer rely on a repository of memorized information but rather must be adept in accessing, evaluating, and using new research evidence.

The EBP movement has advocates and critics. Supporters argue that EBP is a rational approach to providing the best possible care with the most cost-effective use of resources. Advocates also note that EBP provides a framework for self-directed lifelong learning that is essential in an era of rapid clinical advances and the information explosion. Critics worry that the advantages of EBP are exaggerated and that individual clinical judgments and patient inputs are being devalued. They are also concerned that insufficient attention is being paid to the role of qualitative research. Although there is a need for close scrutiny of how the EBP journey unfolds, an EBP path is the one that health care professions will almost surely follow in the years ahead.

TIP A debate has emerged concerning whether the term *evidence-based practice* should be replaced with *evidence-informed practice* (EIP). Those who advocate for a different term have argued that the word "based" suggests a stance in which patient values and preferences are not sufficiently considered in EBP clinical decisions (e.g., Glasziou, 2005). Yet, as noted by Melnyk (2014), all current models of EBP incorporate clinicians' expertise and patients' preferences. She argued that "changing terms now . . . will only create confusion at a critical time where progress is being made in accelerating EBP" (p. 348). We concur and we use EBP throughout this book.

Knowledge Translation