Polit & Beck's NURSING RESEARCH

Generating and Assessing Evidence for Nursing Practice

Jane Flanagan
Cheryl Tatar

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Wolters Kluwer

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TWELFTH EDITION

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Quick Guide to Bivariate Statistical Tests

Level of measurement of dependent variable	Group Comparisons: Number of groups (the independent variable)				Correlational analyses (To examine relationship strength)
	2 Groups		3+ Groups		
	Independent Groups Tests	Dependent Groups Tests	Independent Groups Tests	Dependent Groups Tests	
Nominal (Categorical)	χ^2 p. 401 (or Fisher's exact test) p. 402	McNemar's test p. 402	χ^2 p. 401	Cochran's *Q*	Phi coefficient (dichotomous) or Cramér's *V* (not restricted to dichotomous) p. 403
Ordinal (Rank)	Mann-Whitney Test p. 396	Wilcoxon signed ranks test p. 396	Kruskal-Wallis *H* test p. 400	Friedman's test p. 400	Spearman's rho (or Kendall's tau) pp. 403
Interval or Ratio (Continuous)*	Independent group *t test* pp. 394-395	Paired *t test* p. 396	ANOVA pp. 396-399	RM-ANOVA pp. 400	Pearson's *r* p. 402
	Multifactor ANOVA for 2+ independent variables p. 398				
	RM-ANOVA for 2+ groups x 2+ measurements over time p. 424				

*For distributions that are markedly nonnormal or samples that are small, the nonparametric tests in the row above (for ordinal measures) may be needed.

Polit and Beck's

NURSING RESEARCH

Generating and Assessing Evidence for Nursing Practice

Twelfth Edition

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Wolters Kluwer

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Vice President and Publisher: Julie K. Stegman
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Prepress Vendor: TNQ Tech

Twelfth Edition

9 8 7 6 5 4 3 2 1

Printed in Mexico

Library of Congress Cataloging-in-Publication Data

ISBN-13: 978-1-975223-80-9

Cataloging in Publication data available on request from publisher.

shop.lww.com

TO

The memory of Denise F. Polit

1946–2021

From Denise's son:

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

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

Respectfully,

N. Alexander O'Hara

Acknowledgments

We must start this 12th edition of the book by acknowledging the tremendous loss of Dr. Denise Polit—not only for her family but also for the discipline of nursing. Dr. Polit was not a nurse, but how extremely fortunate our discipline has been to have had her devote her career to supporting the learning, knowledge, and professional development of nurses, specifically in the field of nursing research. Since Denise wrote the first edition of this book in 1978, there has been no other individual who we believe has had more of an impact on the development of generations of nurses in regard to nursing research than Dr. Denise Polit. Denise would often call this book "her baby," which she tenderly cared for throughout each of the first 11 editions. She will be deeply missed!

This 12th edition, like the previous 11 editions, depended on the contributions of dozens of people. Many faculty and students who used the text have made invaluable suggestions for its improvement, and to all of you who have, we are very grateful. In addition to all those who assisted us over the past 40 plus years with the earlier editions, the following individuals deserve special mention.

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

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

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

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Preface

Research methodology is a dynamic enterprise. Even after 11 editions of this book, we have continued to draw new material and inspiration from ground-breaking advances in research methods and in nurse researchers' use of those methods. It is thrilling to share many of those developments in this new edition. We expect that many of the new methodologic and technological enhancements will be translated into powerful evidence for nursing practice. We are pleased that that this 12th edition has built on the foundation of the previous versions We have retained many features that made this book a classic textbook and resource, including its focus on research as a support for evidence-based nursing; but as with other editions, we have introduced important information that we hope will help to shape the future of nursing research.

NEW TO THIS EDITION

New and Added Content

Throughout the book, we have included up-to-date information on methodologic innovations that have arisen in nursing, medicine, and the social sciences during the past 4 to 5 years. These changes reflect the 2022–2026 NINR Strategic Plan and the AACN Essentials. The many additions and changes are too numerous to describe here, so here are just two examples. In Chapter 2 we included a discussion regarding the importance of original research in the practice setting. We have added information about the role of the PhD-prepared nurse in developing new knowledge and working in collaboration with DNP-prepared nurses who will implement this knowledge in care settings. In Chapter 25 there is an expanded and updated CAQDAS computer software for managing qualitative data. Also added is a large section on secondary qualitative data analysis. Braun and Clarke's reflexive thematic analysis and Kyngas et al.'s qualitative content analysis method have also been added to this chapter.

Every chapter has an online supplement (and some chapters in this edition have two supplements), which gave us the opportunity to add a considerable amount of new material.

Here is a complete list of the supplements for the 33 chapters of the textbook:

1. The History of Nursing Research
2. A. Evaluating Clinical Practice Guidelines—AGREE II
   B. Evidence-Based Practice in an Organizational Context
3. Deductive and Inductive Reasoning
4. Complex Relationships and Hypotheses
5. A. Finding Evidence for a Clinical Query
   B. Literature Review Summary Tables
6. Prominent Conceptual Models of Nursing Used by Nurse Researchers, and a Guide to Middle-Range Theories
7. Historical Background on Unethical Research Conduct
8. Research Control
9. Randomization Strategies
10. A. Selected Experimental and Quasi-Experimental Designs: Diagrams, Uses, and Drawbacks/Validity Threats
    B. Plausibility Assessments and Other Strategies When Randomization is Not Possible
11. Other Specific Types of Research
12. Statistical Process Control
13. Sample Recruitment and Retention
14. Other Types of Structured Self-Reports
15. Cross-Cultural Validity and the Adaptation/Translation of Measures
16. Overview of Item Response Theory
17. SPSS Analysis of Descriptive Statistics
18. SPSS Analysis of Inferential Statistics
19. SPSS Analysis and Multivariate Statistics
20. Some Preliminary Steps in Quantitative Analysis Using SPSS
21. Clinical Significance Assessment with the Jacobson–Truax Approach
22. Historical Nursing Research and Other Types of Qualitative Inquiry

23. Models of Generalizability in Qualitative Research
24. Additional Types of Unstructured Self-Reports
25. Transcribing Qualitative Data
26. Whittemore and Colleagues' Framework of Quality Criteria in Qualitative Research
27. Transforming Quantitative and Qualitative Data
28. Complex Intervention Development: Additional Resources
29. Examples of Various Pilot and Feasibility Objectives
30. A. Publication Bias in Systematic Reviews
    B. Supplementary Resources for Qualitative Evidence Synthesis
31. The RE-AIM Framework
32. A. Tips for Publishing Reports on Pilot Intervention Studies
    B. Impact Factor and Publication Information for Selected Nursing Journals
33. Proposals for Pilot Intervention Studies

Another feature of this edition concerns readers' access to references we cited. To the extent possible, the studies we have chosen as examples of research methods are published as open-access articles. These studies are identified in the reference list at the end of each chapter.

We hope that our many revisions will help users of this book to maximize their learning experience.

ORGANIZATION OF THE TEXT

The content of this edition is organized into six main parts.

- **Part 1—Foundations of Nursing Research and Evidence-Based Practice** introduces fundamental concepts in nursing research. Chapter 1 briefly summarizes the history and future of nursing research, discusses the philosophical underpinnings of qualitative research versus quantitative research, and describes the major purposes of nursing research. In this chapter, nursing research is discussed in light of the Institute of Medicine 2020–2030 report, The National Institute of Nursing Research Strategic Plan (2020–2026), the AANC Essentials, and the 2021 Magnet Application Manual. Chapter 2 offers guidance on using research to support evidence-based practice.

Chapter 3 introduces readers to key research terms and presents an overview of steps in the research process for both qualitative and quantitative studies.

Part 2—Conceptualizing and Planning a Study to Generate Evidence for Nursing further sets the stage for learning about the research process by discussing issues relating to a study's conceptualization: the formulation of research questions and hypotheses (Chapter 4), the review of relevant research (Chapter 5), the development of theoretical and conceptual contexts (Chapter 6), and the fostering of ethically acceptable approaches in doing research (Chapter 7). Chapter 8 provides an overview of important issues that researchers must attend to during the planning of any study.

Part 3—Designing and Conducting Quantitative Studies to Generate Evidence for Nursing presents material on undertaking quantitative nursing studies. Chapter 9 describes fundamental principles of quantitative research design, and Chapter 10 focuses on methods to enhance the rigor of a quantitative study, including mechanisms of research control. Chapter 11 examines research with different and distinct purposes, such as noninferiority trials, realist evaluations, surveys, and outcomes research. Chapter 12 is devoted to methods used in quality improvement and improvement science. Chapter 13 presents strategies for sampling study participants in quantitative research. Chapter 14 describes structured data collection methods that yield quantitative information. Chapter 15 discusses the concept of measurement and then focuses on methods of assessing the quality of formal measuring instruments. We describe methods to assess the properties of point-in-time measurements (reliability and validity) and longitudinal measurements—that is, change scores (reliability of change scores and responsiveness). Chapter 16 presents material on how to develop high-quality self-report instruments. Chapters 17–19 present an overview of univariate, bivariate, and multivariate statistical analyses, respectively. Chapter 20 describes the development of an overall analytic strategy for quantitative studies, including material on handling missing data. Chapter 21 discusses the issue of interpreting results and making inferences about clinical significance.

Part 4—Designing and Conducting Qualitative Studies to Generate Evidence for Nursing presents material on undertaking qualitative nursing studies. Chapter 22 is devoted to research designs and approaches for qualitative studies, including information on critical theory, feminist, and participatory action research. Chapter 23 discusses strategies for sampling study participants in qualitative inquiries. Chapter 24 describes methods of gathering unstructured self-report and observational data for

qualitative studies. Chapter 25 discusses methods of analyzing qualitative data, with specific information on grounded theory, phenomenologic, and ethnographic analyses. Greater guidance on coding qualitative data has been added to this edition. Chapter 26 elaborates on methods qualitative researchers can use to enhance (and assess) integrity and trustworthiness throughout their inquiries.

- **Part 5—Designing and Conducting Mixed Methods Studies to Generate Evidence for Nursing** presents material on mixed methods nursing studies. Chapter 27 discusses a broad range of issues, including asking mixed methods questions, designing a study to address the questions, sampling participants in mixed methods research, and analyzing and integrating qualitative and quantitative data. Chapter 28 presents information about using mixed methods approaches in the development of complex nursing interventions. In Chapter 29, we provide suggestions for designing and conducting pilot studies and using data from the pilots to make decisions about "next steps."
- **Part 6—Building an Evidence Base for Nursing Practice** provides additional information on linking research and clinical practice. Chapter 30 offers an overview of methods of conducting systematic reviews that support EBP. In this chapter, we provide guidance on conducting the integrative review, meta-analyses (and an evaluation of confidence in the evidence using the GRADE system), metasyntheses, qualitative evidence syntheses using meta-aggregation, and mixed studies reviews. Chapter 31 offers cutting-edge advice on strategies to enhance the *applicability* of practice-based evidence to clinical decisions for individuals and subgroups. Chapter 32 discusses the dissemination of evidence—how to prepare a research report (including theses and dissertations) and how to publish research findings. The concluding chapter (Chapter 33) offers suggestions on developing research proposals to obtain financial support; it includes information about developing a proposal for a pilot intervention study.

KEY FEATURES

This textbook was designed to be helpful to those who are learning how to do research, to those who are learning to appraise research reports critically, and to use research findings in practice. Many of the features successfully used in previous editions have been retained in this 12th edition. Among the basic principles that helped to shape this and earlier editions of this book are (1) an unswerving conviction that the development

of research skills is critical to the nursing profession, (2) a fundamental belief that research is intellectually and professionally rewarding, and (3) a steadfast opinion that learning about research methods does not need to be intimidating nor dull. Consistent with these principles, we have tried to present the fundamentals of research methods in a way that both facilitates understanding and arouses curiosity and interest. Key features of our approach include the following:

- **Research examples** Each chapter concludes with one or two actual research examples designed to highlight methodologic features described in the chapter and to sharpen the reader's critical thinking skills. In addition, many research examples are used throughout the book to illustrate key points and to stimulate ideas for a study. Many examples used in this edition are published as open-access articles that can be used for further learning and classroom discussion.
- **Specific practical tips on doing research** The textbook is filled with practical suggestions on how to translate the abstract notions of research methods into realistic strategies for conducting research. Every chapter includes several tips for applying the chapter's lessons to real-life situations. These tips are an acknowledgment that there is often a gap between what gets taught in research methods textbooks and what a researcher needs to know to conduct a study.
- **Critical appraisal guidelines** Almost all chapters include guidelines for conducting a critical appraisal of various aspects of a research report.
- **A comprehensive index** We have crafted an exceptionally thorough index. We know that our book is used as a reference book as well as a textbook, and we recognize how crucial it is to access needed information efficiently.
- **Aids to student learning** This book includes several additional features designed to enhance and reinforce learning, including the following: succinct, bulleted summaries at the end of each chapter; tables and figures that provide examples and graphic materials in support of the text discussion; and a detailed glossary.
- **Clear, user-friendly style** Our writing style is designed to be easily digestible and nonintimidating. Concepts are introduced carefully and systematically, difficult ideas are presented clearly, and readers are assumed to have no prior exposure to technical terms.

A Note About Language Used In This Book

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

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

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It is our hope that the content, style, and organization of *Nursing Research,* 12th Edition continue to meet the needs of a broad spectrum of nursing students and nurse researchers. We also hope that the book will help to foster enthusiasm for the kinds of discoveries that research can produce and for the knowledge that will help support an evidence-based nursing practice.

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Jane Flanagan is an Associate Professor and department chairperson at the William F. Connell School of Nursing, Boston College. Jane is a certified nurse practitioner and holds appointments as a nurse scientist at the Massachusetts General Hospital (MGH) Yvonne Munn Center for Nursing Research and as an associate clinical scientist at the Phyllis Cantor Center at the Dana-Farber Cancer Institute. Jane serves on the Board of Directors at the Sherrill House in Boston and as an advisor to the Board at Fox Hill Village in Westwood, MA.

Jane is the editor of the *International Journal of Nursing Knowledge* and *Visions,* the official journal of the Society of Rogerian Scholars in *Advances in Nursing Science*. Jane also serves on the editorial board for the *International Journal for Human Caring*. She is an appointed fellow in NANDA-I, the National Academy of Practice, and the American Academy of Nursing. She is the immediate past president of the Eastern Nursing Research Society (ENRS). Jane's funded research using mixed methods is focused on strategies to improve the experience of older adults—especially dementia caregivers and those with chronic health conditions.

CHERYL TATANO BECK DNSc, CNM, FAAN

Dr. Beck is a Distinguished Professor at the University of Connecticut, School of Nursing. She also has 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 and her certificate in nurse-midwifery from Yale University. Her Doctor of Nursing Science degree is from Boston University. She is a fellow in the American Academy of Nursing and is inducted into the Sigma Theta Tau International Nurse Researcher Hall of Fame and Sigma XI, the Scientific Research Honor Society. She was awarded the Marcé Medal by the International Marcé Society for Perinatal Mental Health for the significant contributions of her research program. She has received numerous other awards such as the Association of Women's Health, Obstetric and Neonatal Nursing's Distinguished Professional Service Award, the Distinguished Alumna Award from Yale University, and Eastern Nursing Research Society's Distinguished Researcher Award.

Over the past 40 years, Cheryl has focused her research efforts on developing a research program on postpartum mood and anxiety disorders. Her Postpartum Depression Screening Scale is based on her series of qualitative studies. She has published over 195 journal articles. In addition to coauthoring award-winning research methods textbooks with Denise Polit, Cheryl coauthored with Dr. Jeanne Watson Driscoll *Postpartum Mood and Anxiety Disorders: A Clinician's Guide*, which received the *2006 American Journal of Nursing Book of the Year Award*. Other books Cheryl has written include *Traumatic Childbirth, Developing a Program of Research in Nursing, Secondary*

Qualitative Data Analysis in the Health and Social Sciences, and *Introduction to Phenomenology: Focus on Methodology.*

Contents

Part 1

FOUNDATIONS OF NURSING RESEARCH AND EVIDENCE-BASED PRACTICE

1

Introduction to Nursing Research in an Evidence-Based Practice Environment

Learning Objectives

1. Describe the importance of nursing research to clinical practice.
2. Recognize the historical trends and future directions of nursing research.
3. Identify the sources of evidence for nursing practice.
4. Outline the two paradigms of nursing research and the research methods associated with them.
5. Describe the difference between basic and applied nursing research.

NURSING RESEARCH IN PERSPECTIVE

Many factors have contributed to a heightened awareness of the need for nurses at all levels to recognize their role in designing, creating opportunities for, implementing, and disseminating knowledge for practice. While technical skill acquisition and competency remain essential to nursing academic and practice settings alike, there is a greater appreciation of the need for nurses to develop, translate, and implement the most trustworthy and sound evidence for practice. **Evidence-based practice (EBP)** is a process that considers not only the best evidence, but also patient preferences and circumstances, social determinants of health, and nurses' clinical judgment, to make informed patient care decisions. Given the nursing focus on health, healing and holism, the best evidence that guides nursing practice is informed by nurses and others with whom they collaborate.

What Is Nursing Research?

Research inquiry relies on a variety of methods to answer questions or solve problems.

Nurses are increasingly engaged in research intended to improve patient care. **Nursing research** is designed to generate evidence about issues of importance to the delivery and outcomes of patient care and as a result, may include work focused on the nursing profession, practice, education, and administration. In this book, we emphasize **clinical nursing research** aimed at guiding nursing practice that improves the health and quality of life of the patients, families/supports, and communities nurses serve.

Nursing research has experienced remarkable growth in the past few decades, providing nurses with a growing evidence base on which to practice. Yet many questions persist, and mechanisms for incorporating research innovations into nursing practice still are in development.

Examples of Nursing Research Questions

- What are the impact and effectiveness of telehealth-delivered psychoeducational and behavioral interventions among persons with dementia and their caregivers? (Saragih, et al., 2022)
- What is the effect of a web-based self-care program for patients with primary hypertension on cardiovascular risk-factors, self-efficacy, and self-care behaviors? (Chen et al., 2022)

The Importance of Research in Nursing

Findings from rigorous research provide evidence for informing nurses' decisions. Nurses have come to accept the desirability of incorporating research evidence into their actions, if the evidence shows that the actions are clinically appropriate and result in positive patient 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 and a prestigious credentialing organization in the United States—developed a Magnet Recognition Program to acknowledge healthcare organizations that provide high-quality nursing care. The 2023 Magnet application manual incorporates a perspective that recognizes global issues in nursing and healthcare. In addition to the 2017 revisions that strengthen evidence-based requirements, the 2021 manual calls for an example with supporting evidence of a clinical nurse who implemented a new or revised EBP practice within the organization

(ANCC, 2023; Graystone, 2017). Applicants must now submit at least three nursing studies reflecting varied types of scholarship: Magnet hospitals must not only be involved in implementing EBP but also in the creation of original nursing research and the dissemination the new knowledge generated. Although it can be challenging to make direct correlations, there is evidence to suggest that Magnet hospitals with their focus on research and EBP may lead to some improved patient outcomes. For example, Aamodt et al. (2021) found that in patients with Parkinson disease, Magnet hospitals had lower rates of mortality and several nurse-sensitive outcomes than those admitted to non-Magnet hospitals, even when differences in other hospital characteristics were taken into account. Also Dierkes et al. (2021) reported that hospitals with Magnet status had 30% lower odds of value-based purchasing penalties suggesting they had fewer hospital readmissions and hospital-acquired conditions in relation to non-Magnet hospitals.

The primary focus of the literature on hospital-based research nurse scientists prepared with a PhD and advanced practice nurses prepared as DNPs is about describing the role in practice. Future work will likely be focused on the impact of the nurse scientist generating original research and the DNP implementing the findings into practice with a focus on the impact on patient care outcomes.

Example of Evidence-Based Practice

The Fall TIPS Program (Dykes et al. (2020); Dykes & Hurley (2021) aimed at reducing the risk of falls in hospitalized patients is now routinely practiced nationwide in hospitals and other patient care facilities such as nursing home settings, but prior to its early development, there were no evidence-based options for preventing falls in the hospital settings despite the known risks to patients and extensive costs of care. Expanded adoption of this nurse-led program reflects mounting evidence that the Fall Tips Program prevents falls in hospitalized patients.

The Consumer–Producer Continuum in Nursing Research

Most nurses are likely to engage in research activities along a continuum of participation. At one end are consumers of nursing research, who read research reports or research summaries to keep up-to-date on findings that might affect their practice. EBP depends on well-informed research consumers.

At the other end of the continuum are producers of nursing research: nurses who conduct research. At one time, most nurse researchers were academics who taught in nursing schools, but research is increasingly being conducted by clinical nurses who seek solutions to recurring problems in patient care.

Between these end points on the continuum lie a variety of research activities that are undertaken by nurses. Even if you never personally carry out a study, you may (1) contribute to an idea for a clinical study; (2) gather information for a study; (3) advise clients about participating in research; (4) seek answers to a clinical problem by searching for and appraising research evidence; or (5) discuss the implications of a study in a **journal club** in your practice setting, which involves meetings (in groups or online) to discuss research articles. Understanding research can improve the depth and breadth of every nurse's professional practice.

TIP

The Cochrane Collaboration, an important organization for EBP, offers an online journal club resource with podcasts, slides, and discussion questions (https://www.cochranelibrary.com/cdsr/journal-club). Journal clubs, including virtual ones, may help to create an environment of lifelong learning, foster a commitment to EBP, and stimulate nursing research (Rosen & Ryan, 2019).

Nursing Research in Historical Perspective

Table 1.1 summarizes some of the key events in the historical evolution of nursing research.

TABLE 1.1 • Historical Landmarks in Nursing Research

YEAR	EVENT
1859	Nightingale's Notes on Nursing is published.
1900	*American Journal of Nursing* begins publication.
1923	Columbia University establishes first doctoral program for nurses. Goldmark Report with recommendations for nursing education is published.

1936	Sigma Theta Tau awards first nursing research grant in the United States.
1948	Brown publishes report on inadequacies of nursing education.
1952	The journal *Nursing Research* begins publication.
1955	Inception of the American Nurses' Foundation to sponsor nursing research.
1957	Establishment of nursing research center at Walter Reed Army Institute of Research.
1963	*International Journal of Nursing Studies* begins publication.
1965	American Nurses' Association (ANA) sponsors nursing research conferences.
1969	*Canadian Journal of Nursing Research* begins publication.
1972	ANA establishes a Commission on Research and Council of Nurse Researchers.
1976	Stetler and Marram publish guidelines on assessing research for use in practice. *Journal of Advanced Nursing* begins publication.
1982	Conduct and Utilization of Research in Nursing (CURN) project publishes report.
1983	*Annual Review of Nursing Research* begins publication.
1985	ANA Cabinet on Nursing Research establishes research priorities.
1986	National Center for Nursing Research (NCNR) is established within U.S. National Institutes of Health.
1988	Conference on Research Priorities is convened by NCNR.
1989	The U.S. Agency for Health Care Policy and Research (AHCPR) is established.
1993	NCNR becomes a full institute, the National Institute of Nursing Research (NINR).
	The Cochrane Collaboration is established.

	Magnet Recognition Program makes first awards.
1995	Joanna Briggs Institute, an EBP collaborative, is established in Australia.
1997	Canadian Health Services Research Foundation is established with federal funding.
1998	The European Academy of Nursing Science (EANS) is launched.
1999	AHCPR is renamed Agency for Healthcare Research and Quality (AHRQ).
2000	NINR's annual funding exceeds $100 million. The Canadian Institute of Health Research is launched. Council for the Advancement of Nursing Science (CANS) is established.
2005	The Quality & Safety Education for Nurses (QSEN) initiative is inaugurated.
2006	NINR issues strategic plan for 2006–2010.
2010	The Institute of Medicine publishes a report, *The Future of Nursing*, that includes research priorities and recommendations for lifelong learning.
2011	NINR celebrates 25th anniversary and issues a new strategic plan.
2016	NINR issues *The NINR Strategic Plan: Advancing Science, Improving Lives*.
2019	NINR budget exceeds $145 million.
2022	NINR issues the 2022–2026 Strategic Plan with this mission: to lead nursing research to solve pressing health challenges and inform practice and policy-optimizing health and advancing health equity into the future.

Florence Nightingale is credited as the first nursing researcher. Her most well-known research contribution involved an analysis of factors affecting soldier mortality and morbidity during the Crimean War (1853–1856). Based on skillful analyses, she was successful in effecting changes in nursing care—and, more generally, in public health. After Nightingale's work, research was absent from the nursing literature until the early 1900s, but most early studies concerned nurses' education rather than patient care.

In the 1950s, research by nurses began to accelerate. For example, the American Nurses' Foundation, which is devoted to the promotion of nursing research, was founded. The surge in the number of studies conducted in the 1950s created the need

for a new journal; *Nursing Research* came into being in 1952. As shown in Table 1.1, dissemination opportunities in professional journals grew steadily thereafter.

In the 1960s, nursing leaders expressed concern about the shortage of research on practice issues. Professional nursing organizations, such as the Western Interstate Council for Higher Education in Nursing, established research priorities, and practice-oriented research on various clinical topics began to emerge in the literature.

During the 1970s, improvements in client care became a more visible research priority, and guidance on assessing research for application in practice settings emerged. Also, nursing research expanded internationally. For example, the Workgroup of European Nurse Researchers was established in 1978 to develop greater communication and opportunities for partnerships among 25 European National Nurses Associations.

In the United States, the National Center for Nursing Research (NCNR) at the National Institutes of Health (NIH) was established in 1986. Several forces outside of nursing also helped to shape the nursing research landscape in the 1980s. A group from the McMaster Medical School in Canada designed a clinical learning strategy that was called evidence-based medicine (EBM). EBM, which promulgated the view that research findings were superior to the opinions of authorities as a basis for clinical decisions, constituted a profound shift for medical education and practice, and has had a major effect on all healthcare professions.

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, helping to put nursing research more into the mainstream of health research. Funding opportunities for nursing research expanded in other countries as well.

Current and Future Directions for Nursing Research

Nursing research continues to develop at a rapid pace and will undoubtedly flourish throughout the 21st century. Broadly speaking, the priority for future nursing research will be the promotion of excellence in nursing science. Toward this end, nurse researchers and practicing nurses will be sharpening their research skills and using those skills to address emerging issues of importance to the profession and its clientele. Among the trends we foresee for the early 21st century are the following:

- *Strengthening of **interprofessional collaboration** through team science.* Collaboration of

nurses with researchers in related fields has expanded in the 21st century as researchers address fundamental healthcare problems with each member bringing their own disciplinary perspective to the design and implementation of the research. In turn, such collaborative efforts could lead to nurse researchers playing a more prominent role in national and international healthcare policies. One major recommendation in the Institute of Medicine's (IOM) influential 2010 report, *The Future of Nursing*, reiterated and expanded upon in the 2021 report, *The Future of Nursing 2020–2030: Charting a Path to Achieve Health Equity* (Wakefield et al., 2021), was that nurses should be full partners with physicians and other healthcare professionals in redesigning healthcare with the goal of achieving health equity for all.

- *A new emphasis on health equity.* Along with the IOM, the NINIR Strategic Plan 2020–2026 calls for emphasis on health equity. NINR has embraced research focused on health equity, social determinants of health, population and community health prevention and health promotion, systems, and models of care (NINR, 2020).

- *Continued focus on EBP.* Encouragement for nurses to engage in evidence-based patient care and lifelong learning is sure to continue. In turn, improvements will be needed both in the quality of studies and in nurses' skills in locating, understanding, critically appraising, and using relevant study results. Relatedly, there is an emerging interest in **translational research**, which involves research on how findings from studies can best be translated into practice.

- *Continued emphasis on research synthesis with an appreciation of the* ***systematic and narrative reviews***. Research syntheses that integrate research evidence across studies are the cornerstone of EBP. However, all types of reviews are critical to EBP. A systematic review is important because it uses a well-defined process to integrate research findings on a narrowly defined research question and includes a rating appraisal of the evidence. Clinical practice guidelines typically rely on such systematic reviews. We offer some guidance on how to create, as well as how to appraise, research syntheses in this book. Narrative reviews are equally important to nursing science as they provide perspective, highlight gaps in what is known, result in a deep understanding and a critique of the topic while often sparking the need for original research (Flanagan, 2022).

- *Expanded local research and quality improvement efforts in healthcare settings.* Projects designed to solve local problems are increasing. This trend will be reinforced as more nurses earn terminal degrees in nursing (DNP, PhD) and as hospitals apply for (and

are recertified for) Magnet status in the United States and in other countries. Mechanisms need to be developed to ensure that evidence from these projects becomes available to others facing similar problems.

- *Increased emphasis on patient-centeredness.* **Patient centeredness** has become a central concern in healthcare, as well as in research. In the United States, the Patient-Centered Outcomes Research Institute funds research focused on assisting communities, patients, and their caregivers to make well-informed healthcare decisions with an enhanced commitment to diversity, equity, and inclusion. Efforts are increasing to ensure that research is relevant to patients and that patients play a role in setting research priorities. **Comparative effectiveness research**, which involves direct comparisons of alternative treatments, has emerged as an important tool for patient-centered research.
- *Relatedly, greater interest in the **applicability** of research.* More attention is being paid to figuring out how study results can be applied to individual patients or groups of patients. A limitation of the current EBP model is that standard strategies offer evidence on average effects of healthcare interventions under ideal circumstances. Ideas are emerging about how best to enhance the applicability of research in real-world settings.
- *Growing interest in defining and ascertaining **clinical significance**.* Research findings increasingly must meet the test of being clinically significant, and patients have taken center-stage in efforts to define clinical significance.
- *Focusing on what nurses are likely to be studying in the future.* Although there is rich diversity in research interests—as we will illustrate throughout this book in the research examples—research priorities have been articulated by several nursing organizations, including NINR, Sigma Theta Tau International, and other nursing organizations throughout the world. Change is a given as nursing must keep up with the trends that influence research agendas, but with a focus on the person, care partner, and community nursing is able to be nimble and respond to the demands.

SOURCES OF EVIDENCE FOR NURSING PRACTICE

Nurses make clinical decisions based on knowledge from many sources, including coursework, textbooks, and their own personal and clinical experiences. Because evidence is constantly evolving, learning about best practice nursing will persist throughout your career.

Some of what you have learned is based on systematic research, but some is not. What are the sources of evidence for nursing practice? Until recently, knowledge primarily was handed down from one generation to the next based on experience, trial and error, tradition, and expert opinion. A brief discussion of some alternative sources of evidence shows how research-based information is different.

Tradition and Authority

Decisions are sometimes based on custom or tradition. Certain "truths" are accepted as given, and such "knowledge" is so much a part of a common heritage that few seek validation. Some nursing interventions are based on custom and "unit culture" rather than on sound evidence. Indeed, one analysis suggested that some "sacred cows" (ineffective traditional habits) persisted even in a healthcare center recognized as a leader in EBP (Hanrahan et al., 2015).

Another common source of information is an authority, a person with specialized expertise. Reliance on authorities (such as faculty or textbook authors) is unavoidable but imperfect: authorities are not infallible, particularly if their expertise is based primarily on personal experience or out-of-date materials.

Clinical Experience and Trial and Error

Clinical experience is a functional source of knowledge and plays an important role in EBP. Yet personal clinical experience has some limitations as a knowledge source because each nurse's experience is too narrow to be generally useful. Moreover, the same objective event is often perceived differently by different nurses.

Trial and error involve trying alternatives successively until a solution to a problem is found. Trial and error may offer a practical means of securing knowledge, but the method tends to be haphazard and solutions may be idiosyncratic.

Logical Reasoning

Solutions to some problems are developed by logical reasoning, which combines experience, the intellect, and formal systems of thought. **Inductive reasoning** involves developing generalizations from specific observations. For example, a nurse may observe the anxious behavior of (specific) hospitalized children and conclude that (in general) children's separation from their parents is stressful. **Deductive reasoning** involves developing specific predictions from general principles. For example, if we

assume that separation anxiety occurs in hospitalized children (in general), then we might predict that (specific) children in a hospital whose parents do not room-in will manifest symptoms of stress. Both types of reasoning are useful for understanding phenomena, and both play a role in research. Logical reasoning by itself, however, is limited because the validity of reasoning depends on the accuracy of the initial premises.

Assembled Information

In making clinical decisions, healthcare professionals rely on information that has been assembled for various purposes. For example, local, national, and international *benchmarking data* provide information on such issues as infection rates or the rates of various procedures (e.g., cesarean births) and can facilitate evaluations of clinical practices. Cost data—information on the costs associated with certain procedures, policies, or practices—are sometimes used as a factor in clinical decision-making. *Quality improvement and risk data*, such as medication error reports, can be used to assess the need for practice changes. Such sources are useful, but they do not provide a mechanism for making clinical decisions or guiding improvements.

Disciplined Research

Research conducted in a disciplined framework is the best method of acquiring knowledge. Nursing research combines logical reasoning with other features to create evidence that, although fallible, tends to be especially reliable. Carefully synthesized findings from rigorous research are especially valuable. The current emphasis on EBP requires nurses to base their clinical practice to the greatest extent possible on research-based findings rather than on tradition, authority, intuition, or personal experience—although nursing will always remain a rich blend of art and science.

PARADIGMS AND METHODS FOR NURSING RESEARCH

A **paradigm** is a world view, a general perspective on the complexities of the world. Paradigms for human inquiry are often characterized in terms of the ways in which they respond to basic philosophical questions, such as, "What is the nature of reality?" and "What is the relationship between the inquirer and those being studied?"

Disciplined inquiry in nursing has been conducted mainly within two broad

paradigms, *positivism* and *constructivism*. This section describes these two paradigms and outlines the research methods associated with them. In later chapters, we describe the transformative paradigm that underpins critical theory research (Chapter 22) and a pragmatism paradigm that underlies mixed methods research (Chapter 27).

The Positivist Paradigm

The paradigm that dominated healthcare research for decades is called **positivism** (or *logical positivism*). Positivism is rooted in 19th century thought, guided by such philosophers as Newton and Locke. Positivism reflects a broader cultural phenomenon (*modernism*) that emphasizes the rational and the scientific.

A fundamental assumption of positivists is that there is a reality *out there* that can be studied and known. (An **assumption** is a basic principle that is believed to be true without proof.) Adherents of positivism assume that nature is basically ordered and regular and that reality exists independent of human observation (Table 1.2). The related assumption of **determinism** refers to the positivists' belief that phenomena are not haphazard but rather have antecedent causes. If a person has a cerebrovascular accident, a positivist assumes that there must be a reason that can be potentially identified. Within this paradigm, much research activity is aimed at understanding the underlying causes of phenomena.

TABLE 1.2 • Major Assumptions of the Positivist and Constructivist Paradigms

PHILOSOPHICAL QUESTION	POSITIVIST PARADIGM ASSUMPTION	CONSTRUCTIVIST PARADIGM ASSUMPTION
What is 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
In what way is the researcher related to those being researched?	The researcher is independent from those being researched; findings are not influenced by the researcher	The researcher interacts with those being researched; findings are the creation of the interactive process
What is the role of values in the	Values and biases are to be held in check; objectivity is	Subjectivity and values are inevitable and desirable

inquiry?	sought	
What are the best methods for obtaining evidence?	Deductive processes → hypothesis testing	Inductive processes → hypothesis generation
	Emphasis on discrete, specific concepts	Emphasis on entirety of a phenomenon, holistic
	Focus on the objective and quantifiable	Focus on the subjective and nonquantifiable
	Outsider knowledge—researcher is external, separate	Insider knowledge—researcher is part of the process
	Fixed, prespecified design	Flexible, emergent design
	Controls over context	Context-bound
	Large, representative samples	Small, information-rich samples
	Measured (quantitative) information	Narrative (unstructured) information
	Statistical analysis	Qualitative analysis
	Seeks generalizations	Seeks in-depth understanding

Positivists value objectivity and attempt to hold personal beliefs and biases in check. The positivists' scientific approach involves using orderly procedures with tight controls of the research situation to test hunches about the phenomena being studied.

Strict positivist thinking has been challenged, and few researchers adhere to the tenets of pure positivism. In the **post positivist paradigm**, there is a belief in reality and a desire to understand it, but post positivists recognize the impossibility of total objectivity. They do, however, see objectivity as a goal and strive to be as neutral as possible. Post positivists also recognize the obstacles 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 healthcare research. For the sake of simplicity, we refer to it as positivism.

The Constructivist Paradigm

The **constructivist paradigm** (also called the *naturalistic paradigm*) began as a countermovement to positivism with writers such as Weber and Kant. Just as positivism reflects the cultural phenomenon of modernism that burgeoned after the industrial revolution, naturalism is an outgrowth of the cultural transformation called postmodernism. Postmodern thinking emphasizes the value of deconstruction, taking apart old ideas and structures, and reconstruction, putting ideas and structures together in new ways. The constructivist paradigm represents a major alternative system for conducting disciplined research in nursing. Table 1.2 compares the major assumptions of the positivist and constructivist paradigms.

For the naturalistic inquirer, reality is not a fixed entity but rather is a construction of the people participating in the research; reality exists within a context, and many constructions are possible. Naturalists thus 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 researcher and those under study is minimized. The voices and interpretations of study participants are crucial to understanding the phenomenon of interest. Findings in 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 information relevant to the research question. The two alternative paradigms correspond to different approaches to 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 provides an overview of the methods associated with the two paradigms.

The Scientific Method and Quantitative Research

The traditional **scientific method** refers to a set of orderly, disciplined procedures used to acquire information. Quantitative researchers use deductive reasoning to generate

predictions that are tested in the real world. They typically move in a systematic fashion from the definition of a problem and the selection of concepts on which to focus, to the solution of the problem. By **systematic**, we mean that the investigator progresses logically through a series of steps, according to a prespecified plan of action.

Quantitative researchers use various control strategies. **Control** involves imposing conditions on the research situation so that biases are minimized and validity is maximized. Control mechanisms are discussed at length later in this book.

Quantitative researchers gather **empirical evidence**—evidence that is rooted in objective reality and gathered through the senses (e.g., through sight or hearing). Observations of the presence or absence of skin inflammation, patients' agitation, or infant birth weight are all examples of empirical observations. Reliance on empirical evidence means that findings are grounded in reality rather than in researchers' personal beliefs.

Evidence for a study in the positivist paradigm is gathered according to an established plan, using structured methods to collect needed information. Usually the information gathered is **quantitative**—that is, numeric information that is obtained through a formal *measurement* and is analyzed statistically.

A traditional scientific study strives to go beyond the specifics of a research situation. For example, quantitative researchers are typically not as focused on understanding why a particular person has a stroke as in understanding what factors generally influence its occurrence in people. The degree to which research findings can be generalized to individuals other than those who participated in a study is called **generalizability**.

The scientific method has enjoyed considerable stature as a method of inquiry and has been used productively by nurse researchers studying a wide range of nursing problems. This approach cannot, however, solve all nursing problems. One important limitation—common to both quantitative and qualitative research—is that research cannot be used to answer moral or ethical questions. Many intriguing questions about humans fall into this area—questions such as whether euthanasia should be practiced or abortion should be legal.

The traditional research approach also must address measurement challenges. To study a phenomenon, quantitative researchers try to measure it using numeric values that express quantity. For example, if the phenomenon of interest is patient stress, researchers would want to assess if patients' stress is high or low. Physiologic

phenomena like blood pressure can be measured with great accuracy and precision, but measuring psychological phenomena (e.g., stress, resilience, depression) is challenging.

Another issue is that nursing research focuses on humans, who are inherently complex and diverse. Quantitative studies typically concentrate on relatively few concepts (e.g., weight gain, fatigue, pain). Complexities tend to be controlled and, if possible, eliminated, rather than studied directly, and this narrowness of focus can sometimes obscure insights. Quantitative research within the positivist paradigm has been accused of an inflexibility of vision that fails to capture the full breadth of human experience.

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. Constructivist studies focus on understanding the human experience as it is lived, usually through the collection and analysis of qualitative materials that are narrative and subjective.

Researchers who criticize the scientific method believe that it is overly reductionist—that is, it reduces human experience to the few concepts under investigation, and those concepts are defined in advance by the researcher rather than emerging from the perspective of those under study. Constructivist researchers tend to emphasize the dynamic and holistic aspects of human life and attempt to capture those aspects in their entirety.

Researchers use flexible, evolving procedures to capitalize on findings that emerge during the study. Constructivist inquiry often takes place in the **field** (i.e., in naturalistic settings), sometimes over an extended time period. In constructivist research, the collection of information and its analysis typically progress concurrently; as researchers sift through information, they gain insights, new questions emerge for them, and they seek further evidence to amplify or confirm the insights. Through an inductive process, researchers integrate information to develop a theory or description that helps illuminate the phenomenon of interest.

Constructivist studies yield rich, in-depth information that can elucidate varied dimensions of a complicated phenomenon. Findings from qualitative research are typically grounded in the real-life experiences of people with first-hard 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 extremely intelligent and sensitive—but fallible—tools. The subjectivity that enriches the analytic insights of skillful researchers can yield trivial and obvious "findings" among less competent ones.

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 further complicated by the fact that most constructivist studies involve a small group of participants. Thus, the generalizability of findings from constructivist inquiries is sometimes a potential concern.

Multiple Paradigms and Nursing Research

Paradigms should be viewed as lenses that help to sharpen our focus on phenomena, not as blinders that limit intellectual curiosity. Nursing knowledge would be thin if there were not a rich array of methods available within the two paradigms—methods that are often complementary in their strengths and limitations. We believe that intellectual pluralism is advantageous.

We have emphasized differences between the two paradigms and associated methods so that distinctions would be easy to understand. Subsequent chapters of this book elaborate further on differences in terminology, methods, and research products. It is equally important to note, however, that the two main paradigms have many features in common, only some of which are mentioned here:

- *Ultimate goals.* The aim of disciplined research, regardless of paradigm, is to answer questions and solve problems. Both quantitative and qualitative researchers seek to capture the truth about an aspect of the world in which they are interested, and both groups can make meaningful contributions to evidence for nursing practice.
- *External evidence.* Although the word *empiricism* has come to be associated with the classic scientific method, researchers in both traditions gather and analyze evidence empirically, that is, through their senses.
- *Reliance on human cooperation.* Human cooperation is essential in both qualitative and quantitative research. To understand people's circumstances and experiences, researchers must persuade them to participate in the investigation *and* to speak and act candidly.

- *Ethical constraints.* Research with human beings is guided by ethical principles that sometimes are at odds with research goals. Ethical dilemmas sometimes confront researchers, regardless of paradigm or method.
- *Fallibility of disciplined research.* Virtually all studies have limitations. Every research question can be addressed in many ways, and inevitably there are tradeoffs. The fallibility of any single study makes it important to understand and critically appraise researchers' methodologic decisions when evaluating evidence quality.

Thus, researchers using traditional scientific or constructivist methods face many similar challenges despite philosophic and methodologic differences. The selection of an appropriate method depends on researchers' personal philosophy and 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 study effects by carefully measuring patient outcomes. On the other hand, if a researcher asks, "What is the process by which parents learn to cope with the death of a child?" the researcher would be hard pressed to quantify such a process. Personal world views of researchers help to shape their questions.

In reading about the alternative paradigms for nursing research, you likely were more attracted to one of the two paradigms. It is important, however, to learn about both approaches to disciplined inquiry and to recognize their respective strengths and limitations. In this textbook, we describe methods associated with both qualitative and quantitative research to assist you in becoming methodologically bilingual. This is especially important because large numbers of nurse researchers are now undertaking **mixed methods research** that involves the collection and analysis of both qualitative and quantitative data (Chapters 27–29).

THE PURPOSES OF NURSING RESEARCH

The general purpose of nursing research is to answer questions and solve problems of relevance to nursing. Specific purposes can be classified in various ways. For example, a distinction sometimes is made between basic and applied research. **Basic research** is undertaken to discover general principles of human behavior and biophysiologic processes. Some basic research (*bench research*) is performed in laboratory settings and focuses on the molecular and cellular mechanisms that underlie disease. **Applied research** is aimed at examining how basic principles can be used to solve practice problems. Nurse researchers undertake both types of research.

Another way to classify research purposes concerns the extent to which studies provide explanatory information. Specific study goals can range along a descriptive/explanatory continuum, but a fundamental distinction is between studies whose primary intent is to describe phenomena and those that are **cause-probing**—that is, designed to illuminate the underlying causes of phenomena. The descriptive/explanatory continuum includes studies whose purposes are identification, description, exploration, prediction/control, and explanation of health-related phenomena. For each purpose, various types of questions are addressed—some more amenable to qualitative than to quantitative inquiry, and vice versa. Table 1.3 gives examples of questions asked for these purposes.

TABLE 1.3 • Research Purposes and Questions on the Description/Explanation Continuum

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? How intense is the phenomenon?	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? How is the phenomenon experienced? What is the process by which the phenomenon evolves?
Explanation	What is the underlying cause	How does the phenomenon work?

	of the phenomenon? Does the theory explain the phenomenon?	What does the phenomenon mean? How did the phenomenon occur?
Prediction	If phenomenon X occurs, will phenomenon Y follow? What will happen if we modify a phenomenon or introduce an intervention?	–
Control	Can the occurrence of the phenomenon be prevented or controlled?	–

In both nursing and medicine, researchers have written several books to facilitate EBP, and these books categorize studies in terms of the types of information needed by clinicians (Guyatt et al., 2015; Melnyk & Fineout-Overholt, 2022). These writers focus on several types of clinical purposes: Therapy/intervention; Diagnosis/assessment; Prognosis; Etiology (causation)/prevention of harm; Description; and Meaning/process.

Therapy/Intervention

Therapy/intervention questions are addressed by healthcare researchers who want to learn about the effects of specific actions, products, or processes. Typically, researchers addressing this type of question are evaluating whether a new treatment or a practice change has beneficial effects.

The name "Therapy" for this category originates from promoters of EBP in medicine who focused on studies of the effects of "therapeutic" medical interventions, such as new drugs or surgical procedures. However, this category should be thought of more broadly to include research on the effects of alternative ways of doing things, usually with the intent of testing strategies for making improvements. Therapy questions are foundational for evidence-based decision-making. Evidence for changes to nursing practice, nursing education, and nursing administration comes from studies that have specifically tested the effects of intervening in a particular way. Table 1.4 provides some examples of studies in which nurse researchers addressed diverse Therapy/intervention questions. If such questions are answered in a rigorous fashion, the evidence might

suggest a practice change or the implementation of an institutional innovation.

TABLE 1.4 • Examples of Therapy/Intervention Questions

THERAPY/INTERVENTION QUESTION	AREA OF FOCUS
Does an education intervention improve teenagers' knowledge and behaviors relating to contraception? (Pivatti et al., 2019)	Nursing practice
Do muscle relaxation or nature sounds reduce fatigue in patients with heart failure? (Seifi et al., 2018)	Nursing practice
Does a nurse-led phone follow-up education program reduce cardiovascular risk among patients with cardiovascular disease? (Zhou et al., 2018)	Nursing practice
Does a simulation-based palliative care communication skill workshop improve self-perception of skills in expressing empathy and discussing spiritual issues among healthcare workers and students? (Brown et al., 2018)	Interprofessional education
Does simulation improve the ability of first year nursing students to learn vital signs? (Eyikara & Baykara, 2018)	Nursing education
Does a bundle of interventions to support nurses' engagement in evidence-based practice (EBP) increase their knowledge, attitudes, and use of library resources? (Carter et al., 2018)	Nursing administration

Studies in this category range from evaluations of highly specific treatments (e.g., comparing two types of cooling blankets for febrile patients) to assessments of complex multisession interventions designed to change behaviors (e.g., nurse-led health promotion programs). **Intervention research** is essential for EBP, and nurses are increasingly engaging in this type of research. Research addressing Therapy questions is inherently cause-probing: the researcher wants to know if a certain intervention will cause improved outcomes.

Diagnosis/Assessment

A burgeoning number of nursing studies concern the rigorous development and

evaluation of formal instruments to screen, diagnose, and assess patients and to measure important clinical outcomes—that is, they address **Diagnosis/assessment questions**. High-quality instruments with documented accuracy are essential for both clinical practice and research. Typically, the question being addressed is "Does this new instrument yield reliable and valid information about an outcome, situation, or condition of importance to nursing?" Studies addressing Diagnosis questions are not cause-probing.

Example of a Study Aimed at Diagnosis/Assessment

Banister et al. (2022) examined the nursing assessment and documentation recorded in the electronic health records of patients admitted over 1 month during the height of the COVID-19. Using a nursing assessment framework, they captured the clinical decision-making, nursing diagnoses, and key social determinant of health.

Prognosis

Researchers who ask **Prognosis questions** strive to understand the outcomes that are associated with a disease or a health problem (i.e., its consequences), to estimate the probability the outcomes will occur, and to predict the types of people for whom the outcomes are most likely. Such studies facilitate the development of long-term care plans for patients and can suggest the need for appropriate interventions. For example, Prognosis studies provide valuable information for guiding patients to make lifestyle choices or to be vigilant for key symptoms. Prognosis questions are typically cause-probing; the researcher wants to know if, for example, a certain disease or behavior causes subsequent adverse outcomes.

Example of a Study Aimed at Prognosis

Lazard et al. (2020) studied a peer-to-peer app aimed at promoting social support in young cancer survivors to determine their preferences for such a tool.

Etiology (Causation)/Prevention of Harm

Nurses encounter patients who face potentially harmful exposures as a result of environmental agents or because of personal behaviors or characteristics. Providing information to patients about such harms and how best to avoid them depends on the availability of accurate evidence about factors that contribute to health risks. For example, there would be no smoking cessation programs if research had not provided strong evidence that smoking cigarettes causes or contributes to a wide range of health problems. Thus, identifying factors that affect or cause illness, mortality, or morbidity is an important purpose of many nursing studies. **Etiology questions** are inherently cause-probing—the purpose is to understand factors that cause health problems.

Example of a Study Aimed at Identifying and Preventing Harm

Wang et al. (2023) conducted a randomized clinical control trial to compare a midwife-led weight management program to a control group. Findings indicated that the nurse midwife-led weight management program encouraged appropriate gestational weight gain, health literacy, and improved the experience of antenatal care.

Description

Description questions are not in a category typically identified in EBP-related classification schemes, but so many nursing studies have a descriptive purpose that we include it here. Examples of phenomena that nurse researchers have described include patients' pain, physical function, confusion, and levels of depression. Quantitative description focuses on the prevalence, size, intensity, and measurable attributes of phenomena. Qualitative researchers, by contrast, describe the dimensions or the evolution of phenomena.

Example of a Quantitative Study Aimed at Description

Schoenfisch et al. (2019) did a study to describe hospital nursing staff's use of lift or transfer devices. They found that only 40% of the nurses used equipment for at least half of lifts/transfers.

Example of a Qualitative Study Aimed at Description

Dickins et al. (2021) undertook a study among low-income midlife and older women to describe the patterns of healthcare use, facilitators, barriers, and opportunities to optimize primary/preventive care engagement.

Meaning/Process

Designing effective interventions, motivating people to comply with treatments and health promotion activities, and providing sensitive advice to patients are among the many healthcare activities that can benefit from understanding clients' perspectives. Research that provides evidence about what health and illness mean to clients, what barriers to positive health practices they face, and what processes they experience in a transition through a healthcare crisis are important to evidence-based nursing practice. Studies that address **Meaning/process questions** are seldom focused on identifying the underlying causes of phenomena but might offer important clues.

Example of a Study Aimed at Understanding Meaning/Process

Mattson and coresearchers (2024) studied the process by which women use self-management of opioid recovery through pregnancy and early parenting.

Study Purposes and Evidence-Based Practice

Studies that address therapy/intervention questions provide the most direct evidence for EBP. If we want to know, for example, whether wedge-shaped foam cushions are more effective in preventing heel pressure ulcers than standard foam pillows, we would need to look for rigorous studies that have addressed this therapy question. However, other questions also play a role in improving the quality of nursing care, albeit in different ways.

Table 1.5 presents examples of different types of questions relating to cigarette smoking, using the study purpose categories we just described. Only one of these questions is directly actionable—the Therapy question. If there is strong evidence that nurse-led smoking cessation programs are effective in reducing smoking among young adults, we might consider initiating such a program in our own community.

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