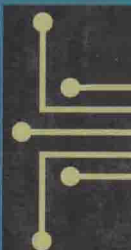


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NINTH EDITION

NURSING RESEARCH



Generating and Assessing
Evidence *for* Nursing Practice

Denise F. Polit • Cheryl Tatano Beck




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Ninth Edition

Denise F. Polit, PhD, FAAN

President

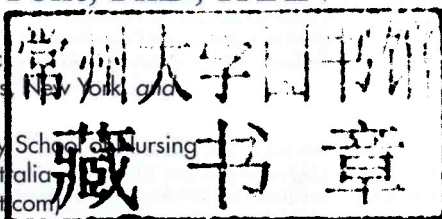
Humanalysis, Inc.
Saratoga Springs, New York, and

Professor

Griffith University, School of Nursing

Gold Coast, Australia

(www.denisepolit.com)



Cheryl Tatano Beck, DNSc, CNM, FAAN

Distinguished Professor

School of Nursing

University of Connecticut

Storrs, Connecticut



Wolters Kluwer | Lippincott Williams & Wilkins

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Acquisitions Editor: Hilarie Surrena
Product Manager: Mary Kinsella
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Design Coordinator: Joan Wendt
Manufacturing Coordinator: Karin Duffield
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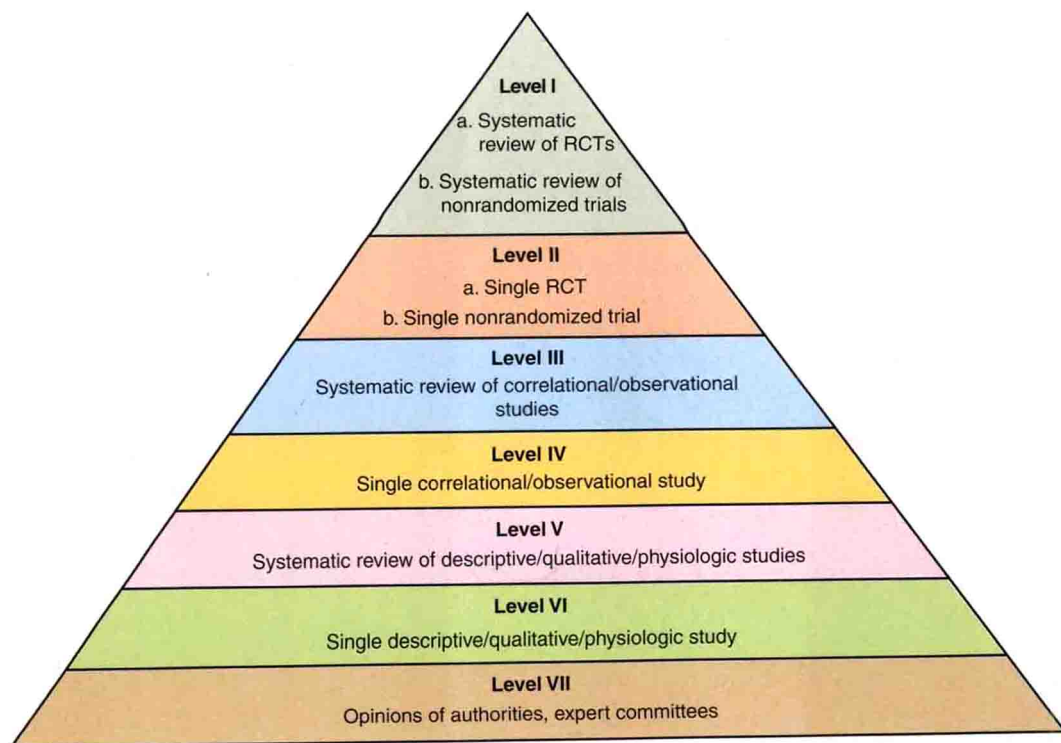
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The author(s), editors, and publisher have exerted every effort to ensure that drug selection and dosage set forth in this text are in accordance with the current recommendations and practice at the time of publication. However, in view of ongoing research, changes in government regulations, and the constant flow of information relating to drug therapy and drug reactions, the reader is urged to check the package insert for each drug for any change in indications and dosage and for added warnings and precautions. This is particularly important when the recommended agent is a new or infrequently employed drug.

Some drugs and medical devices presented in this publication have Food and Drug Administration (FDA) clearance for limited use in restricted research settings. It is the responsibility of the health care provider to ascertain the FDA status of each drug or device planned for use in his or her clinical practice.

Quick Guide to an Evidence Hierarchy of Designs for Cause-Probing Questions



TO

The memory of Pat Hungler (1931–2010)
who co-authored the first 6 editions of this book.



Acknowledgments

This ninth edition, like the previous eight editions, depended on the contribution of many individuals. Many faculty and students who used the text have made invaluable suggestions for its improvement, and to all of you we are very grateful. In addition to all those who assisted us during the past 30 years with the earlier editions, the following individuals deserve special mention.

We would like to acknowledge the comments of the reviewers of the previous edition, anonymous to us initially, whose feedback greatly influenced our revisions. Several of the comments triggered our work on the new chapters, and on the re-organization of content, and for this we are indebted.

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Reviewers

Jennifer Beck, PhD, RN, CNE
Interim Dean, School of Nursing
Our Lady of the Lake College
Baton Rouge, Louisiana

Diane M. Breckenridge, PhD, MSN, RN
Associate Professor
La Salle University
Nursing Research Director
Abington Memorial Hospital
Philadelphia, Pennsylvania

Lynn Clark Callister, RN, PhD, FAAN
Professor
Brigham Young University College of Nursing
Provo, Utah

Deborah J. Clark, RN, PhD, MSN, MBA
Director, BSN Program
ECPI, MCI, School of Health Science
Virginia Beach, Virginia

Bonnie S. Dean, PhD, RN
Assistant Professor
Duquesne University School of Nursing
Pittsburgh, Pennsylvania

Debbie R. Faulk, PhD, RN, CNE
Professor of Nursing
EARN Program Coordinator
Auburn Montgomery School of Nursing
Montgomery, Alabama

Betsy Frank, RN, PhD, ANEF
Professor
Indiana State University College of Nursing Health
and Human Services
Department of Baccalaureate Nursing
Completion
Terre Haute, Indiana

Sara L. Gill, PhD, RN, IBCLC
Associate Professor
University of Texas Health Science Center
San Antonio School of Nursing
San Antonio, Texas

Angela Gillis, PhD, RN
Professor and Former Chair
St. Francis Xavier University School of
Nursing
Antigonish, Nova Scotia

Valerie J. Gooder, PhD, RN
Assistant Professor
Weber State University
Ogden, Utah

Beverly G. Hart, RN, PhD, PMHNP-BC
Professor of Baccalaureate and Graduate
Nursing
Eastern Kentucky University
Richmond, Kentucky

Karen L. Hessler, PhD, FNP-C
Assistant Professor of Nursing
University of Northern Colorado
Greeley, Colorado

Rebecca Keele, PhD Nursing, PHCNS-BC
Associate Professor of Nursing
New Mexico State University
School of Nursing
College of Health and Social Services
Las Cruces, New Mexico

Margaret A. Louis, RN, PhD, CNE,
BC-Informatics
Associate Professor
School of Nursing
University of Nevada, Las Vegas

Carla L. Mueller, PhD, RN
Professor
Department of Nursing
University of Saint Francis
Fort Wayne, Indiana

Cynthia O'Neal, RN, PhD
Assistant Professor
Texas Tech University Health Sciences Center
Lubbock, Texas

Carolyn D. Pauling, RNC, PhD
Associate Professor of Nursing
Grand View University
Des Moines, Iowa

Michael Perlow, DNS, RN, BS, Biology;
BSN; MSN; DNS
Interim Dean
Murray State University
Murray, Kentucky

Janice M. Polizzi, MSN, RN
Associate Professor
Florida Hospital College of Health Sciences
Orlando, Florida

Laurel A. Quinn, ND, RN, CLNC, CNE
Chair, Department of Nursing
Trinity Christian College
Palos Heights, Illinois

Kathy Reavy, PhD, RN
Associate Professor
School of Nursing
Boise State University
Boise, Idaho

Mary Anne Hales Reynolds, RN, PhD,
ACNS-BC
Associate Clinical Professor
School of Nursing
Idaho State University
Pocatello, Idaho

Ratchneewan Ross, PhD, RN
Associate Professor
College of Nursing
Kent State University
Kent, Ohio

Marina Fowler Slemmons, PhD, CPNP
Professor
North Georgia College & State University
Dahlonega, Georgia

Amy Spurlock PhD, RN
Professor
Troy University
Troy, Alabama



Preface

Research methodology is not a static enterprise. Even after writing eight editions of this book, we continue to draw inspiration and new material from ground-breaking advances in research methods and in nurse researchers' use of those methods. It is exciting and heartening to share many of those advances, which we expect will be translated into powerful evidence for nursing practice. We considered the 8th edition as a watershed edition of a classic textbook, but we are persuaded that this edition is even better. We have retained many features that made this book a classic, including its focus on research as a support for evidence-based nursing, but have introduced important innovations that will help to shape the future of nursing research.

NEW TO THIS EDITION

New Organization of Qualitative and Quantitative Materials

In previous editions, we endeavored to balance material on qualitative and quantitative methods to ensure that both would be given similar emphasis. This balance may have been obscured, however, by intermingling content on both approaches within chapters. In this edition, we have blended material on qualitative and quantitative research mainly in the early chapters—for example, in the chapters on

evidence-based practice and research ethics. Then, we devoted an entire section of the book (Part III) to methods in quantitative research and another section (Part IV) to methods for qualitative inquiry. We hope that this new organization will permit greater continuity of ideas and will better meet the needs of students and faculty.

New Chapters

We have added two chapters on mixed methods research, which involves the integration of qualitative and quantitative data in a single inquiry. These new chapters represent a formal recognition of the tremendous methodologic refinements and the surge of interest in mixed methods research that have occurred in the past decade. Chapter 25 describes basic strategies in mixed methods design, sampling, and data analysis. Chapter 26 describes the use of mixed methods research in the development and testing of nursing interventions. Many nursing studies—including many doctoral inquiries—now use mixed methods, so we think these additional chapters will provide useful guidance to an emerging generation of scholars.

New Content

Throughout the book, we have included material on methodologic innovations that have arisen in nursing, medicine, and the social sciences during the

past 4 to 5 years. A few of the many additions, which are too numerous to catalog here completely, include new models of generalizability, new or updated guidelines for reporting research in journals, technological advances in data collection, advances in dealing with the problem of missing data, new approaches to systematic reviews (includes mixed studies reviews), a revised model for developing and testing interventions (the 2008 Medical Research Council framework), and new guidelines for obtaining research funding from the National Institutes of Health (NIH).

ORGANIZATION OF THE TEXT

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

- **Part I—Foundations of Nursing Research and Evidence-Based Practice** introduces fundamental concepts in nursing research. Chapter 1 summarizes the history and future 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 utilizing 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 qualitative and quantitative studies.
- **Part II—Conceptualizing and Planning a Study to Generate Evidence** 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 sound approaches in doing research (Chapter 7). Chapter 8 provides an overview of important issues that must be attended to during the planning of any type of study.
- **Part III—Designing and Conducting Quantitative Studies to Generate Evidence** presents material on undertaking quantitative nursing studies. Chapter 9 describes fundamental principles and applications 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 purposes, including surveys, outcomes research, and needs assessments. Chapter 12 presents strategies for sampling study participants in quantitative research. Chapter 13 describes using structured data collection methods that yield quantitative information. Chapter 14 discusses the concept of measurement, and then focuses on methods of assessing the quality of data from formal measuring instruments. Chapter 15 presents material on how to develop high-quality self-report instruments. Chapters 16, 17, and 18 present an overview of univariate, bivariate, and multivariate statistical analyses, respectively. Chapter 19 describes the development of an overall analytic strategy for quantitative studies, including new material on handling missing data and interpreting results.
- **Part IV—Designing and Conducting Qualitative Studies to Generate Evidence** presents material on undertaking qualitative nursing studies. Chapter 20 is devoted to research designs and approaches for qualitative studies, including material on critical theory, feminist, and participatory action research. Chapter 21 discusses strategies for sampling study participants in qualitative inquiries. Chapter 22 describes methods of gathering unstructured self-report and observational data for qualitative studies. Chapter 23 discusses methods of analyzing qualitative data, with specific information on grounded theory, phenomenologic, and ethnographic analyses. Chapter 24 elaborates on methods qualitative researchers can use to enhance (and assess) integrity and quality throughout their inquiries.
- **Part V—Designing and Conducting Mixed Methods Studies to Generate Evidence** presents new material on mixed methods nursing studies. Chapter 25 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 26 presents innovative information

about using mixed methods approaches in the development of nursing interventions.

- **Part VI—Building an Evidence Base for Nursing Practice** provides additional guidance on linking research and clinical practice. Chapter 27 offers an overview of methods of conducting systematic reviews that support EBP, with an emphasis on meta-analyses, metasyntheses, and mixed studies reviews. Chapter 28 discusses dissemination of evidence—how to prepare a research report (including theses and dissertations), and how to disseminate and publish research findings. The concluding chapter (Chapter 29) offers suggestions and guidelines on developing research proposals and getting financial support, and includes new information about applying for NIH grants and interpreting scores from NIH's new scoring system.

KEY FEATURES

This textbook was designed to be helpful to those who are learning how to do research, as well as 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 9th 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) faith in our opinion that learning about research methods need be neither 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 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 ideas for a study.

- **Critiquing Guidelines.** Most chapters include a section devoted to guidelines for conducting a critique of each aspect of a research report. These sections provide a list of questions to draw attention to specific aspects of a report that are amenable to appraisal.
- **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.
- **Specific practical tips on doing research.** The textbook is filled with practical guidance 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 suggestions are in recognition of the fact that there is often a large gap between what gets taught in research methods textbooks and what a researcher needs to know in conducting a study.
- **Aids to student learning.** Several features are used to enhance and reinforce learning and to help focus the student's attention on specific areas of text content, 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; study suggestions at the end of each chapter; a detailed glossary; and a comprehensive index for accessing information quickly.

TEACHING–LEARNING PACKAGE

Nursing Research: Generating and Assessing Evidence for Nursing Practice, 9th edition, has an ancillary package designed with both students and instructors in mind.

- **The Resource Manual** augments the textbook in important ways. The manual itself provides students with exercises that correspond to each text chapter, with a focus on opportunities to critique actual studies. The appendix includes 12 research journal articles in their entirety, plus

a successful grant application for a study funded by the National Institute of Nursing Research. The 12 reports cover a range of nursing research endeavors, including qualitative and quantitative studies, an instrument development study, an evidence-based practice translation project, and two systematic reviews. Full critiques of two of the reports are also included, and can serve as models for a comprehensive research critique.

- **The Toolkit to the Resource Manual** is a must-have innovation that will save considerable time for both students and seasoned researchers. Included on a CD-ROM, the Toolkit offers dozens of research resources in Word documents that can be downloaded and used directly or adapted. The resources reflect best-practice research material, most of which have been pretested and refined in our own research. The Toolkit originated with our realization that in our technologically advanced environment, it is possible to not only *illustrate* methodologic tools as graphics in the textbook but also to make them directly available for use and adaptation. Thus, we have included dozens of docu-

ments in Word files that can readily be used in research projects, without forcing researchers to “reinvent the wheel” or tediously retype material from the textbook. Examples include informed consent forms, a demographic questionnaire, content validity forms, and a coding sheet for a meta-analysis—to name only a few. The Toolkit also has lists of relevant and useful websites for each chapter, which can be “clicked” on directly without having to retype the URL and risk a typographical error.

- **The Instructor’s Resource CD-ROM** includes a PowerPoint slides summarizing key points in each chapter, test questions that have been placed into a program that allows instructors to automatically generate a test and an image bank.

It is our hope that the content, style, and organization of this book 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.

DENISE F. POLIT, PhD, FAAN



CHERYL TATANO BECK, DNSC, CNM, FAAN





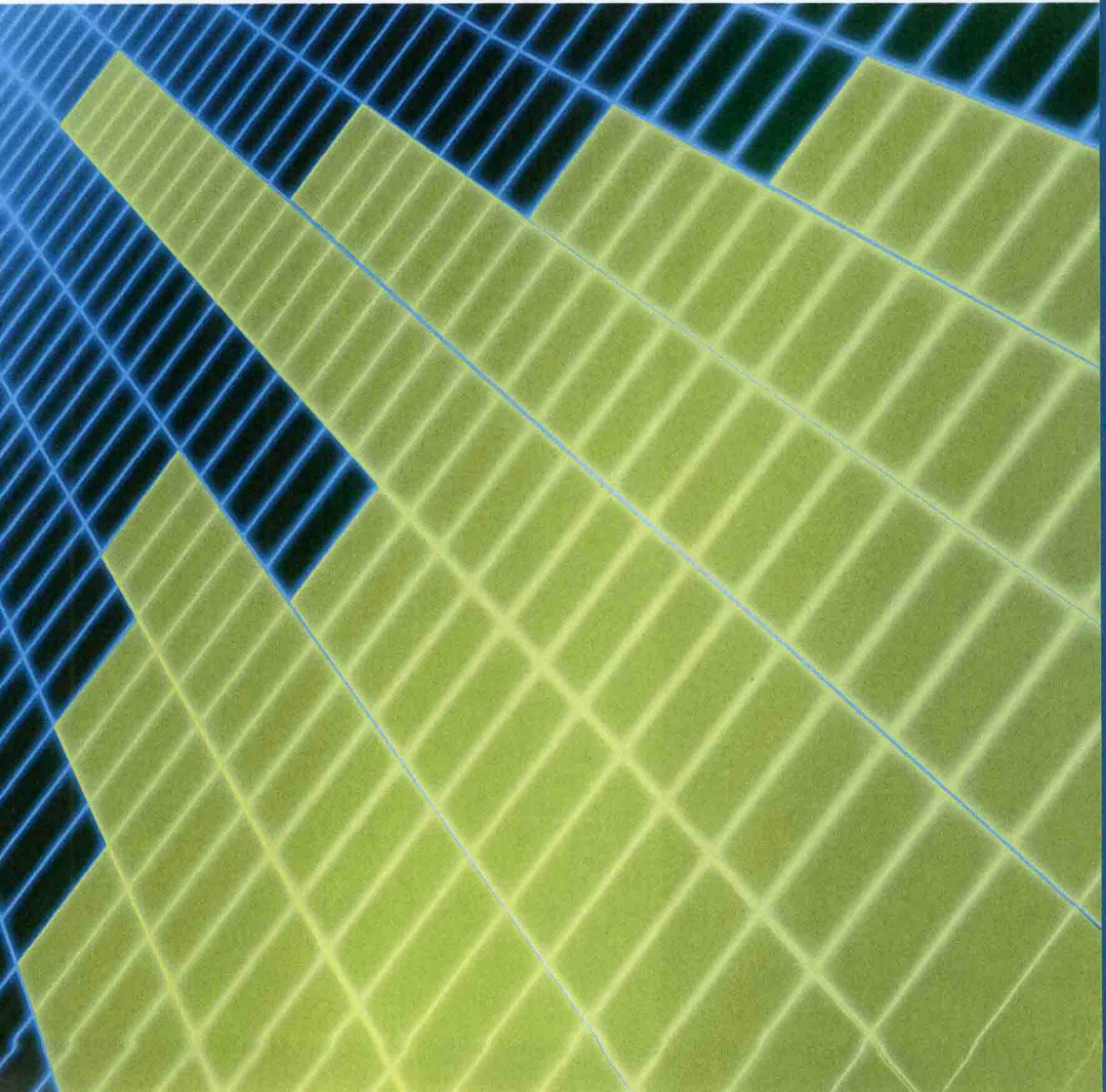
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PART 1

FOUNDATIONS OF
NURSING RESEARCH



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

NURSING RESEARCH IN PERSPECTIVE

In all parts of the world, nursing has experienced a profound culture change. Nurses are increasingly expected to understand and conduct research, and to base their professional practice on research evidence—that is, to adopt an **evidence-based practice (EBP)**. EBP involves using the best evidence in making patient care decisions, and such evidence typically comes from research conducted by nurses and other healthcare professionals.

What Is Nursing Research?

Research is systematic inquiry that uses disciplined methods to answer questions or solve problems. The ultimate goal of research is to develop, refine, and expand knowledge.

Nurses are increasingly engaged in disciplined studies that benefit nursing and its clients, and that contribute to improvements in the entire healthcare system. **Nursing research** is systematic inquiry designed to develop trustworthy evidence about issues of importance to the nursing profession, including nursing practice, education, administration, and informatics. In this book, we emphasize **clinical nursing research**, that is, research designed to guide nursing practice and to improve the health and quality of life of nurses' clients.

Nursing research has experienced remarkable growth in the past three decades, providing nurses with a growing evidence base from which to practice. Yet many questions endure and much remains to be done to incorporate research innovations into nursing practice.

Examples of nursing research questions:

- What is the effect of increased body mass index on survival and complications following elective open heart surgery? (Barnett et al., 2010)
- What is it like for children with leukemia to experience cancer-related fatigue? (Wu et al., 2010)

The Importance of Research in Nursing

Although there is not a consensus about what types of “evidence” are appropriate for EBP, there is general agreement that research findings from rigorous studies provide especially strong evidence for informing nurses' decisions and actions. Nurses are accepting the need to base specific nursing actions and decisions on research evidence indicating that the actions are clinically appropriate, cost-effective, and result in positive outcomes for clients.

In the United States, research plays an important role in nursing in terms of credentialing and status. The American Nurses Credentialing Center (ANCC)—an arm of the American Nurses Association