

FOUNDATIONS OF NURSING RESEARCH

FOURTH EDITION



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ROSE MARIE NIESWIADOMY

Foundations of

NURSING RESEARCH

FOURTH EDITION

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*To my husband, Ben, our four children,
and our seven grandchildren for helping me to
discover the really important things in life*



Preface

My primary purpose for writing the fourth edition of this book continues to be promoting interest in research, particularly research conducted by nurses. I firmly believe that research is essential to the growth of the nursing profession. Nursing research improves patient care and demonstrates that nurses are key members of the health care team. Research results show that nurses are not only caring but efficient providers of health care.

As a reader of this book, you are not expected to become proficient in critiquing research reports or to be able to conduct research independently. My goals for writing this book will have been achieved if you:

- are more enthusiastic about nursing research
- have gained knowledge about the research process
- possess beginning skills necessary to evaluate research findings
- are motivated to use research findings in your practice
- have the desire to conduct your own research studies in the future.

For those of you who are just beginning your careers in nursing, the future of the profession depends on you.

This book is intended primarily for individuals with little research experience, particularly undergraduate nursing students. However, many students in graduate programs have used this text to gain a better understanding of nursing research. They have commented that this text explains the research process clearly and succinctly. It is my hope that practicing nurses will also use this book as they evaluate study findings for use in practice and as they begin to conduct their own studies.

FEATURES OF THE BOOK

The informal writing style has been maintained in this fourth edition of the text. The book is even more learner-friendly than the previous three editions. In the past, readers have made many positive comments about the writing style. Students have said that they often feel as if they are talking with me, the author. Please interact with me as you read this

text. You can nod in agreement, frown in disagreement, or shake your head in disbelief if you do not understand the material. Regardless of your responses, please *react!* Get involved. This is the best way to learn about research.

The exercises at the end of the chapters are meant to help you get excited about research. Because most of you will not be conducting research while you are learning about the research process, exercises in class will help to simulate what it would be like if you were actually carrying out the steps of a study.

Material is presented in a very concrete manner. This book presents approximately 60 excerpts from recent studies published by nurses to illustrate various aspects of research. New terms are highlighted and defined the first time they are discussed. At the end of Chapters 3 through 15, a section is devoted to critiquing the specific step of the research process that each chapter addresses. Also, a set of critiquing questions is highlighted in a box for easy access. Each chapter concludes with a summary of the content presented in the chapter.

Two distinctive features of the book are the Get Involved Activities and the Self-Tests at the end of each chapter. Readers tell me that they like to see how well they perform on the self-tests. Answers to all questions are provided at the back of the book.

A new feature of the text is the inclusion of *Research on the Web*. This feature appears in each chapter, encouraging readers to go to the free Companion Website at www.prenhall.com/nieswiadomy to access the interactive, chapter-specific modules. Each module consists of a variety of critical thinking and other exercises, links to other online resources regarding nursing research, and objectives.

Instructors adopting this textbook have free access to the online Syllabus Manager™ feature of the Companion Website, www.prenhall.com/nieswiadomy. It offers a whole host of features that facilitate the students' use of the Companion Website, and allows faculty to post syllabi, course information, and assignments online for their students. Finally, online course management companions for **Foundations of Nursing Research, 4th Edition** are available for schools using Blackboard, Course Compass, or WebCT course management systems. The online course management solutions feature interactive modules and an electronic test bank for teaching this course content through distance learning. For more information and a demonstration of Syllabus Manager™ or Prentice Hall's online course companions, please contact your Prentice Hall Sales Representative.

Tell yourself that learning about nursing research can be interesting, fun, and exciting. Have a happy journey!

Rose Marie Nieswiadomy, PhD, RN



Acknowledgments

There are many people to thank as the fourth edition of this book is published. It is hard to believe that this is actually the fourth edition. When I first decided to write a research textbook in 1985, I never dreamed that I would be writing a fourth edition. The need for this type of book is evident by its continued use in this country and other English-speaking countries throughout the world.

I, once again, owe a debt of gratitude to the instructors who have chosen this book as the primary text for their research courses and to other instructors who have recommended it as a reference source for their students.

Kudos go to all of the students who have given this textbook good reviews. I have received many of their comments about how learner-friendly the book is and how it is one of the few textbooks that they have read from cover to cover. Of course, it helps that this textbook does not weigh 20 pounds, as do some of their other textbooks!

I am grateful that master's and doctoral level students also use this book. They tell me that this text presents the research process very clearly. When they review this book they achieve a greater recall and understanding of research.

Practicing nurses also receive my heartfelt thanks for having the courage to pick up a research textbook. It demonstrates their awareness of the importance of nursing research.

Connie Maxwell, librarian at Texas Woman's University, critiqued the chapter on the review of the literature. With her help, this chapter has been updated and revised extensively.

Many people at Prentice Hall Health deserve my thanks, especially Maura Connor, Executive Editor, who made the decision to publish another edition of this textbook. I am also very grateful to Beth Romph, Editorial Assistant, for her encouraging e-mails as the book material was being prepared.

My family, again, deserves much credit for my accomplishments. They have been very understanding as I have worked on book revisions. There were only three grandchildren at the time of the first edition. Now seven grandchildren keep our family gatherings lively. I am a "workaholic," but my family members have helped me to remember what is *really* important in life.

In the last two editions, I presented a way to pronounce my last name. I hope it was helpful to those readers, and I will present it again for you. The name is of Polish derivation. The i's are silent, and the accent is on the first syllable. The name is pronounced like: Ness' wah dough me. I might mention that some members of my husband's family pronounce the name differently, particularly those members who speak Polish. I apologize to them for my attempt to simplify the pronunciation of this difficult name.



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PART



***Introduction to Nursing
Research***

CHAPTER 1

Development of Nursing Research

✦ OUTLINE

Importance of Nursing Research

Definitions of Nursing Research

Sources of Nursing Knowledge

Scientific Research

Purposes of Nursing Research

Goals for Conducting Nursing Research

- Evidence-based Nursing Practice
- Credibility of the Nursing Profession
- Accountability for Nursing Practice
- Documentation of the Cost-effectiveness of Nursing Care

Quantitative and Qualitative Research

Outcomes Research

Roles of Nurses in Research

- Principal Investigator
- Member of a Research Team
- Identifier of Researchable Problems
- Evaluator of Research Findings
- User of Research Findings
- Patient/Client Advocate During Studies
- Subject in Studies

History of Nursing Research

Research Priorities for the Future

National Institute of Nursing Research

Summary

Nursing Research on the Web

Get Involved Activities

Self-test

✦ OBJECTIVES

On completion of this chapter, you will be prepared to:

1. Define nursing research
2. Identify sources of nursing knowledge
3. Describe scientific research
4. Compare two broad purposes for conducting research
5. Discuss four goals for conducting nursing research
6. Compare qualitative and quantitative research
7. Recognize the importance of outcomes research
8. Contrast the various roles of nurses in research
9. Recall some of the historic events in the development of nursing research
10. Determine priority areas for nursing research
11. Explain the significance of the National Institute of Nursing Research

✦ NEW TERMS DEFINED IN THIS CHAPTER

applied research
 basic research
 clinical nursing research
 empirical data

nursing research
 outcomes research
 qualitative research
 quantitative research

What is nursing research? If you were to walk outside right now and ask the first 10 people who passed by to answer this question, you probably would receive some strange answers. Most people are unaware that nurses conduct research.

Nursing research is frequently viewed as part of medical research. This appears to hold true even for highly educated members of society. A friend of mine (who has a master's degree in another field) described nursing research as "research that has to do with discovering new medications and treatments that are used, and things like that." I tried to explain to her that nursing research concerns nursing and things nurses do that are different from the actions of other disciplines. This does not mean that a nurse should not be involved in a study in which new drugs are being tested. But this type of study would be a medical rather than a nursing study. Nurses may be involved in interdisciplinary research, but to qualify as nursing research, a study should concern the unique realm of nursing.

The National League for Nursing (NLN) has recommended that all baccalaureate programs include research content in their curriculums. Florence Downs, editor of *Nursing Research*, wrote in 1996 that it has been a number of years since anyone has debated the need for research content in undergraduate curriculums. It is a given. However, she mentioned that she has received complaints from instructors stating that articles in *Nursing Research* contain "too many statistics and too many variables" and that most articles are too difficult for students to evaluate. Downs wrote that the days are over when we examined one variable at a time. She stated that research investigations and the reports of them have, indeed, become more complicated. However, she contended that nurses need to be able to understand research findings and the effects of these findings on practice. Downs further contended that this goal cannot be accomplished in a single research course.

IMPORTANCE OF NURSING RESEARCH

I'm sure you are trying to convince yourself that nursing research is important (or you wouldn't be reading this textbook!). You may be trying to meet the educational requirements for a baccalaureate degree or, as a registered nurse, someone has convinced you that you need more knowledge about research.

In the research classes that I teach, I try to do a "hard sell" on the first day of class. Sometimes the folded arms and facial expressions of students indicate that they are not convinced of the importance of learning about research. I try to help them understand that research knowledge will help them to be an excellent nurse. They are challenged to constantly question every intervention they perform or see performed. Questions to ask include: Am I performing this intervention because someone told me to or maybe even

because this is the intervention that has *always* been used? What evidence exists that this is the most effective intervention for the problem? If an intervention is not based on research evidence, there is no way to determine that this intervention is the optimum one. I hope that your instructor or you, yourself, will not have to do a “hard sell” to convince you that research is of utmost importance to the nursing profession. I *promise* that your efforts to learn about nursing research will be rewarded in your nursing career in the future.

DEFINITIONS OF NURSING RESEARCH

There is some discrepancy among authors about the definition of nursing research. Polit and Hungler (1999) have broadly defined nursing research as “a systematic search for and validation of knowledge about issues of importance to the nursing profession” (p. 3). Burns and Grove (1997) defined nursing research as being concerned with knowledge that directly and indirectly influences clinical nursing practice. Several authors have defined nursing research in a narrower sense to indicate only research that concerns nursing care. Hott and Budin (1999) have written that in the strictest sense nursing research is concerned with nursing practice. Research in nursing education and research in nursing administration are seen as important, but these two types of research would be labeled as educational research in nursing and nursing administration research. Wilson and Hutchinson (1996) differentiated between nursing research and research in nursing. They indicated that nursing research is concerned with clinical problems, whereas research in nursing is the broader study of the nursing profession and includes historical, ethical, and political studies.

In this book, the term **nursing research** is defined as the systematic, objective process of analyzing phenomena of importance to nursing. Using this definition, nursing research includes all studies concerning nursing practice, nursing education, and nursing administration. Also, studies concerning nurses themselves are included in the broad category of nursing research. The term **clinical nursing research** will be used to indicate nursing research that involves clients or studies that have the potential for affecting the care of clients, such as studies with animals or with “normal” subjects.

To learn about nursing research and how to conduct research, it is important to gain an understanding of what scientific research is all about and why this method of gaining knowledge is valuable to nurses. The scientific method is only one source of nursing knowledge; however, it is generally considered to be the most reliable source of knowledge.

SOURCES OF NURSING KNOWLEDGE

Nurses have relied on several sources of knowledge to guide nursing practice. A great storehouse of knowledge for nurses has been tradition. Tradition involves the handing down of knowledge from one generation to another and leads to actions that occur because “we’ve always done it that way.”

Another source of knowledge for nurses has been found in authority. Experts or authorities in a given field often provide knowledge for other people. In the past, nurses looked to physicians for a great deal of their practice knowledge. It has only been in recent years that nurses have begun to build a unique body of nursing knowledge.

Nurses have also used trial and error as a means of discovering knowledge. If one approach did not work, another one was used. Finally, when a certain approach was found to be effective, the trial-and-error process ceased. Frequently, the reasons behind the failure or success of a certain method were not determined. The goal was: "If it works, we'll use it."

The most objective and reliable source of nursing knowledge is obtained through disciplined research, according to Polit and Hungler (1999). They stated that research obtains knowledge that, although fallible, tends to be more reliable than knowledge obtained through tradition, authority, or experience.

SCIENTIFIC RESEARCH

Traditional scientific research is characterized by several features. The researcher uses systematic, orderly, and objective methods of seeking information. The scientific method uses **empirical data**, which are data gathered through the sense organs. Information is gained in the form of data or facts that are obtained in an unbiased manner from some aspect of the real world. The researcher tries to exercise as much control as possible over the research situation to minimize biased results. Various means of exercising such control will be discussed throughout this book. The researcher's opinions and personal biases should not influence the findings of a study.

There are many similarities between scientific research and the problem-solving approach that is familiar to all nurses. Both processes involve identifying a problem area, establishing a plan, collecting data, and evaluating the data. The purposes of these two activities are, however, quite different. Problem solving attempts to seek a solution to a problem that exists for a person or for persons in a given setting. The purpose of scientific research is much broader. It seeks to obtain knowledge that can be generalized to other people and to other settings. For example, the nursing staff might be concerned about the best approach to teaching Mrs. Smith, a blind patient, how to operate an insulin pump. This would be an example of an immediate problem that needs a solution. Scientific research, on the other hand, would be concerned with the best approach to use in teaching blind people, in general, how to operate insulin pumps. Scientific research is concerned with the ability to generalize research results.

PURPOSES OF NURSING RESEARCH

Research may be classified, according to the general purpose of the study, as basic and applied research. **Basic research** is concerned with generating new knowledge, while **applied research** is concerned with using knowledge to solve immediate problems. Basic research is also referred to as pure research.

The purpose of basic research according to Kerlinger (1986) is to test theory. Basic research is also used to generate new theories. Whether basic research seeks to generate or develop theories, immediate application of the results usually does not occur. In fact, years may pass before the social usefulness of the results of the research is determined or acknowledged. Basic research often uses laboratory animals as subjects.

McCarthy (2000) studied rats to determine factors that might influence food intake and gastric emptying when an infection is present. Interleukin-6 (IL-6) and tumor necrosis factor (TNF) were injected into a group of rats. Injection of TNF reduced food intake but did not affect gastric emptying. Injection of IL-6 reduced both food intake and gastric emptying. The researcher suggested that these findings may be helpful in the development of nutrition interventions for people with infections.

Applied research is directed toward generating knowledge that can be used in the near future. It is often conducted to seek solutions to immediate problems (Kerlinger, 1986; Polit & Hungler, 1999). It appears that the majority of nursing studies have been examples of applied research. Most of the studies cited in this text are examples of applied research.

The distinction between basic and applied research is really not as clear-cut as it may seem. Sometimes the findings of basic research are applied rather quickly in the clinical setting, whereas the findings of applied research actually lead to basic studies. A distinction between the two may be meaningless because of the overlap between the types. Many studies contain elements of both basic and applied research because theory is being tested that will have immediate implications for nursing. The distinction between basic and applied research may have more to do with financial support for the project than with the purpose of the study. In this sense, basic research may imply that the researcher is provided support to work on a particular project without having to indicate the immediate practical usefulness of the findings.

In the past, researchers in academic institutions have had the freedom to conduct basic research. Siegfried (1996) stated that science “has thrived on curiosity-driven research on topics chosen by individual researchers without immediate regard for practical applications” (p. 7D). He wrote that this system has produced understanding of human life and the universe. He contended that “saving money has begun to matter more than saving society, and science’s financial fishbowl is shrinking” (p. 7D). Because of a decrease in government funding for basic research, investigators are seeking private funding. With private funding come special interest groups. Siegfried expressed the fear that science’s previous tradition of academic freedom may shift to a private world of objectives and quality control.

Although nursing research is generally of the applied type, nurses are also finding it more difficult to receive funding for their research. To advance their likelihood of receiving funding in the managed care environment, Vessey (1996) called for nurse researchers to negotiate partnerships with managed care executives. She asserted that nurses need to demonstrate to these executives that by optimizing the health of individuals, the financial health of the corporation will be optimized as well. Baldwin and Nail (2000) contended that funding might depend on an investigator’s ability to link his or her study to an organization’s strategic goals.