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Review of: Foundations of Clinical Research Applications to Practice (3rd edition)

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INTRODUCTION

Foundations of Clinical Research: Applications to Practice is the third edition written by physical therapy professors at MGH Institute of Health Professions in Boston Massachusetts. The textbook is intended as the primary textbook for educational instruction related to research and critical thinking. The authors intended use of this text by physical therapists, occupational therapists, speech therapists, nursing, medicine, exercise physiologists and other health care related disciplines. This user-friendly textbook can be utilized by anyone interested in step-by-step illustrations for developing, implementing and disseminating research related activities.

REVIEW

Over the years, *Foundations of Clinical Research: Applications to Practice* has proven to be essential in empowering students, educators and clinicians interested in conducting research. Whether one is a consumer of research, a novel researcher or a seasoned scholar, this text is an excellent resource with outstanding instructions, demonstrations and illustrations to assist the reader in understanding research related concepts and procedures. Consistent with the paradigm shift related to research, the third edition emphasis is placed on evidence-based practice. In addition, vocabulary consistent with the International Classification of Functioning and Disability is integrated throughout the text making this resource user-friendly across various disciplines.

ORGANIZATION

The textbook is divided into five parts totaling 34 chapters and ends with appendices, a glossary and index. Throughout the text, the authors utilize boxes, tables, figures, and footnotes to assist the reader with comprehension of the material. Boxes provide learning exercises such as brief case studies, acronyms, comical illustrations, or ancient theories and myths. Tables are utilized to provide concise definitions of a concept, demonstrate methods or explain SPSS computer printouts as related to data analysis. Figures are used to illustrate a concept or computerized graphs. Footnotes highlight information such as providing further explanations of a concept or exceptions to a stated rule. Each chapter ends with a commentary specific to the chapter's topic and a comprehensive reference list.

The textbook ends with the Appendices, Glossary and Index. Appendices A-E serve as a reference providing the reader with statistical tables, an algorithm for selecting the appropriate statistical test, procedures for determining power and sample size, transformation of data, and samples of the informed consent form. Information in the glossary provides a quick reference for

definitions of words or concepts used within the text. Following each definition is a number in parenthesis indicative of the chapter in which the word or concept was introduced. A comprehensive index completes the textbook.

PART I

This portion of the text provides a basic foundation related to clinical research. This part consists of three chapters, one table, three boxes and nine figures. Chapter 1 entitled, "A Concept of Clinical Research," introduces the reader to the concept of evidence-based practice and its significance in clinical practice. The authors provide excellent figures illustrating the disablement model as described by Nagi, the World Health Organization International Classification of Functioning, Disability and Health (ICF), and components of evidence-based practice as a framework for clinical decision making. This chapter continues with basic concepts such as measurement outcomes, models of health and disability, evidence-based practice, sources of knowledge, types of research, and the research process.

Chapters 2 and 3 cover the role of theory and ethical issues in clinical research, respectively. Contexts within these two chapters include purpose, components and characteristics of theory, integrity of the researcher, protection of human rights, the institutional review board, and elements of informed consent.

PART II

"Concepts of Measurement" is the title of part II and includes chapters 4, 5 and 6. Part II contains two tables, two boxes, and nine figures appropriately utilized to enhance the readers understanding of the concepts presented. Operational definitions for terms related to quantification and measurement, indirect nature of measurement, rules of measurement, measurement error, reliability coefficient, types of reliability, generalizability, validity as well as criterion and norm referencing are provided. Part II is essential and clearly illustrates the fundamentals and application of the various types of measurements.

PART III

"Designing Clinical Research" is the essence of part III and contains 18 tables, four boxes, and approximately 60 figures. Encompassing chapters 7 through 16, this portion of the textbook reinforces the research process discussed in part 1 focusing on step 1, "Identifying the Research Question"; step 2, "Designing the Study"; and step 3, "Methods". In Chapter 7, Portney and Watkins do an outstanding job in communicating to the reader the essentials in "Asking the Research Question" and continue in chapter 8 by communicating the process of "Sampling" and its various techniques. "Validity in Experimental Design" is the title of chapter 9, and its focus is on topics such as, characteristics of experiments, research protocols, design strategies for controlling intersubject differences and threats to validity. Chapters 10 through 16 provide the reader with various levels of research designs including experimental, quasi-experimental, single-subject, exploratory, descriptive, surveys and questionnaires, and systematic reviews and meta-analysis. Application for each research design is thoroughly illustrated utilizing physical therapy clinically based research scenarios.

PART VI

"Data Analysis" is the emphasis of part IV. Comprising of chapters 17 through 30, the authors continue to reinforce the research process discussed in part 1 focusing on, step 4 of the research process, "Data Analysis." Various statistical procedures are explained by showing the relationship between experimental design selected, utilization of appropriate statistical applications in further examining the data, and reaching a sound conclusion. Statistical methods include descriptive stats, statistical inference, t-test, analysis of variance, multiple comparisons, nonparametrics, correlation, regression, chi-square, statistical measures for reliability, statistical measures for validity, epidemiology, and multivariate analysis. Throughout the 13 chapters, the authors utilize approximately five boxes, 72 figures and 78 tables. SPSS computer printouts for the various statistical methods are also used to provide explanation for all aspects of the printout in order to assist the reader in understanding how to analyze the data and determine significance. "Data Management" is discussed and provides the reader with guidelines for recording and organizing data in preparation for data entry into computers and statistical programs.

PART V

The final part of this text is titled, "Communication." Chapters 31 through 34 comprises part V and focuses on step 5 of the research process emphasizing steps in the dissemination of research outcomes. The reader is guided, in detail, through the process of searching the literature, writing a research proposal, reporting results, and evaluating research reports. The authors utilize one box, five figures and 12 tables to enhance the readers understanding of disseminating information.

SUMMARY

Foundations of Clinical Research Applications to Practice is a superb resource for individuals with an interest in research. The text is comprehensive and very detailed. It is highly recommended for use in clinical and academic settings particularly as we move toward evidence-based practice in the delivery of quality health care.