

This book is a must-read for all students and trainees in clinical and counseling psychology and the go-to resource for everyone interested in clinical science. It is an updated classic from the foremost leader in clinical psychological science. Kazdin assembled the best works in psychological methods to walk us through all stages of the research process emphasizing the importance of using science to understand and treat clinical disorders while at the same time addressing the challenges and pitfalls head-on. This updated masterpiece will be required reading in the training of the next generation of clinical scientists.

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Once again, Alan E. Kazdin has interwoven his own research design and methodological contributions with those of leading scholars across a variety of relevant areas to describe and clarify research and methodological issues in scientific inquiry. The result—an expanded and updated contemporary fifth edition of a book that will continue to serve as the model for informing and addressing methodological issues. It simply sets the standard in this arena for both academic and clinical readers.

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PREFACE

This book of readings is designed to improve understanding of methodology and research practices in clinical and counseling psychology and related areas where basic and applied research are conducted. Students and professionals in training or actively involved in research are the intended audience. Many of the articles address topics and issues that span the field of psychology and indeed science more generally. Topics in this book such as generating ideas for research, translating these into research studies, selecting among design and assessment options, and evaluating and presenting results are among the core concerns of scientific research. In addition, broader issues related to ethics, scientific integrity, and the reliability and replicability of research findings are active topics in psychology and other sciences and are elaborated as well.

The emphasis of this book is on the dominant paradigm that characterizes contemporary scientific research. This paradigm of course is the quantitative tradition that relies primarily on null hypothesis statistical significance testing (NHST). This is not an implicit or explicit endorsement of the paradigm. Indeed, a recurring theme is the recognition that the methods of studying phenomena can directly contribute to the findings one obtains. Thus, the book endorses multiple methods and research traditions, including—but well beyond—NHST. Just as scientific knowledge is not the only way of knowing (e.g., deduction, intuitionism), the current paradigm is not the only way of studying phenomena empirically (e.g., qualitative research, mixed-methods research, nonstatistical methods of data evaluation). Nevertheless, it is central that students and professionals master and keep abreast of the dominant paradigm, understand the many methodological options and advances, and be alert to the many obstacles and shoals when designing their studies.

The contents of the book include principles, procedures, and practices that govern research. The organization of the book conveys features of research that follow in approximate logical and often temporal order as they arise in the flow of an investigation. The chapters are divided into 12 parts:

1. Introduction: Overview and Background
2. Beginning the Research Process
3. Participants in Research
4. Design Options With and Without Randomization
5. Assessment
6. Data Analysis, Evaluation, and Presentation
7. Special Topics: Evaluation in Clinical Practice and Research
8. Multiple Methodologies and Levels of Data Analysis
9. Ethics and Scientific Integrity
10. Open Science, Replication, and Research Practices
11. Publication and Communication of Research
12. Perspectives on Methodology

While there is an obvious sequence in planning and executing research, many facets of research emerge throughout and are integrated with other parts of the research process. For example, ethical issues emerge before, during, and after a study is conducted. As one facet of that, protection of participant rights (e.g., informed consent, right of participants to withdraw from the study without penalty) must be assured before a study is begun. Typically, approval of a research proposal describing the design, consent procedures, and more by a special committee (institutional review board) is needed by most colleges, universities, and private research institutions. Similarly, data analyses might seem to be a topic that only emerges well into the research study after the data are collected. However, data analytic considerations also emerge before the study begins, because they may influence how many subjects will be recruited, how many groups or conditions are included in the study, and ideally, how missing data or outliers (extreme scores) will be handled. As the book discusses, investigators are encouraged to preregister their studies, which consists of presenting many details of the study and decision points before the study is even begun.

Methodology includes standard topics that represent core principles and practices of scientific research. Examples include distinctions such as basic and applied research, methods of assigning subjects to conditions, and criteria for selecting measures. Yet methodology is dynamic and changes along with other advances in science. For example, new ways of running subjects and collecting data (e.g., online), new ways of drawing on publicly available information (e.g., big data, records of internet use, tracking GPS locations through smartphones), new models of assessment (e.g., computerized assessment), and even newer inroads in devising and reporting research (e.g., artificial intelligence, chatbots) raise novel situations for the design of studies, protection of privacy, and appropriate research practices. There is heightened interest in fostering open science practices in research—that is, those practices that increase transparency, facilitate replication, ensure that data and related materials are shared, and so on.

These practices already have improved research. The articles in this book are designed to reflect fundamental issues in the development, design, and evaluation of research but also to incorporate changes and priorities in contemporary research methods.

CHANGES FOR THE FIFTH EDITION

In this fifth edition of the book, several changes and new lines of work are included that greatly extend the prior edition. Updated articles were selected to give current and more extended coverage of

- samples included in research and the strengths and limitations of various samples;
- ethnicity and culture and how they can influence many aspects of research (e.g., selecting measures, interpreting the results, ethical issues);
- assessments that can improve clinical practice with individual patients as well strengthen the conclusions one can reach in treatment research (e.g., experience sampling, computerized adaptive assessments, avoiding questionable measurement practices);
- data evaluation (e.g., strengths and limitations of effect size, a brief introduction to Bayesian statistics, sensitivity analyses to foster within study replication, use of “big data” in research);
- diverse methodologies (e.g., qualitative research, mixed-methods research, single-case designs, a wide range of randomized controlled clinical trial designs);
- roles and uses of technology, including artificial intelligence and apps, in the research process;
- attention to open science and replication of findings (e.g., data badges used in journal publication, widely adopted procedures such as preregistration);
- updates on ethical issues and scientific integrity (e.g., improving understandability of consent forms, protecting information and client rights, managing the challenges of new technologies); and
- updates in communicating one’s results and preparing manuscripts for convention presentation and publication (e.g., APA Journal Article Reporting Standards).

DIVERSITY

Diversity is a unifying theme of sound methodology. To begin, diversity of participants is important and is a theme throughout the book. Psychological science as well as other areas (e.g., medicine) have neglected or greatly underrepresented

many populations. Individuals of color, with diverse identities, or from diverse cultures and multiple geographical areas (e.g., from low- and middle-income countries) are often neglected. Even approximately one-half of the population (women) have been relatively neglected in basic and applied research in clinical psychology, psychology more generally, and other sciences where human and nonhuman animals are studied.

Ethnicity, culture, sex, gender, and identity issues receive more attention in the present volume in light of increased recognition that these facets have been relatively neglected in research and that they can moderate core psychological processes (e.g., learning, memory, perception). Also, with the increased globalization of research, via collaboration and use of international databases, more attention on ethnicity and culture is needed in our training as researchers. In decades past, researchers were encouraged to include diverse participants, and grants often required it. Beyond participant inclusion, diversity must play a stronger role in our conceptualization of the research process, the meaning of measures, and perspectives that develop and expand our interpretation of affect, cognition, and behavior. Consequently, diversity in who is studied is a critical theme and is central to many facets of methodology discussed in this edition.

Diversity has a broader meaning in this book. The book emphasizes the importance of methodological diversity in science and of course specifically psychological science. There are multiple methodologies in research and the focus, yield, and contributions of these vary. We usually learn in our training the importance of experiments based on groups, comparison of group differences, null hypothesis testing, and statistical evaluation. These topics are well covered in this edition because they reflect the dominant paradigm. Students ought to master the strengths, methods, options, and weaknesses of that paradigm. Yet other, equally rigorous methodologies are critically important and are covered as well (e.g., true experiments, quasi-experiments, observational studies, and qualitative, mixed-methods, and single-case experiments). Diversity of methodologies adds to the options available to the researcher as well as the breadth of knowledge we can obtain about a given phenomenon.

SELECTION OF ARTICLES

Multiple considerations guided the selection of articles in this book. First, articles were selected to cover several steps or stages that emerge in planning and executing research, as I have mentioned. Second, articles were selected not only to improve our understanding of research methods, but also to provide concrete recommendations for practices to guide the design, execution, and writeup of an investigation. Many of the articles in this edition present tables that summarize critical points and provide checklists or questions that can guide us in designing a study or preparing a report (poster, presentation) to communicate our findings. Third, an effort was made to identify highly readable articles. Articles were selected to minimize technical jargon and related

features that might sedate even the most vigilant reader. Fourth, when possible, I selected articles that convey controversy about using the procedures or methods that are presented. Many methodological practices are debatable (and debated), and understanding the bases for the debates can provide a deeper understanding about methodology and improve one's own research by conveying options and their varied strengths and weaknesses.

In terms of technical level, the book is relatively free from formulae or mathematical equations. I am not against formulae, and indeed as an infant I recall drinking it on a regular basis. However, methodology for a book of this sort ought to be very accessible. Given the coverage and readable style, the book can be readily used on its own, particularly for graduate and advanced undergraduate courses, or as a supplement to other texts. The readings have the advantage of immersing someone in the contemporary literature and primary sources.

The new edition includes 28 new articles of the 47 included in the text. These new articles cover (a) the treatment of core topics with updated material and citations; (b) revisions in our field on such topics as assessment, open science, ethics, and scientific integrity; (c) topics that had received much less attention at the time of the prior edition (e.g., data sharing, use of "big data," secondary data analyses); and (d) articles I prepared to provide updated information on the few topics for which I could find suitable articles. For the articles I prepared, I drew from another source where each topic is presented and illustrated in greater detail (Kazdin, 2024; see references in the first chapter).

Although the topics of the present book are organized according to the flow of research, articles were selected that transcended and blur boundaries and discrete steps of research. Indeed, some articles placed in one part may have a title that suggests they could be placed in another part. The placements are quite deliberate, of course. However, the articles help to convey the interdependence of all phases of research.

Most of the articles in the book have been published previously. An advantage is they have traversed the review and publication process and hence their merit already has been favorably evaluated in advance of inclusion in this volume. Some articles from the prior edition of the book were retained because they still reflect classic statements on key topics (e.g., statistical power, effect size) or are versions that have been updated (e.g., the American Psychological Association's *Ethical Principles of Psychologists and Code of Conduct*). Indeed, students are likely to miss many classical articles, and even entire topics, without retaining some of them in this book.

OVERALL SUMMARY

The fifth edition is a collection of classic and new articles on core topics of research (e.g., foundations of statistical significance testing, power of statistical tests) and advances and emphases since the last edition (e.g., expanded sampling, novel designs, increases in Bayesian analyses). A goal is to achieve a balance between conceptual and concrete information to guide researchers. The

article selection was based on scanning multiple national and international journals, even though most articles are from American Psychological Association journals. Methodology is dynamic, yet we often teach it as if there were fixed and formulaic practices. The book will convey these dual facets—we must know the basics on which research depends but also sample the dynamism of research and the novel procedures that are used in contemporary research.

The contributors whose articles are included are gratefully acknowledged, not only for their articles, but also for the special contribution their work makes to psychological science and science more generally. I am grateful for the assistance and support of editors and several staff of the American Psychological Association. Yale University and the faculty and staff of its Department of Psychology and the Henry Koerner Center have provided an enriching and supportive environment for which I am extremely grateful.