

FOURTH EDITION



THE HANDBOOK

of
HEALTH
BEHAVIOR
CHANGE

Kristin A. Riekert
Judith K. Ockene
Lori Pbert
Editors

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***The* HANDBOOK *of* HEALTH
BEHAVIOR CHANGE**

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This book is dedicated to all the people and families who work hard to maintain a healthy lifestyle and take care of their loved ones' health in the midst of multiple personal, social, and cultural challenges, and to the health care professionals who work tirelessly to help their patients and communities live healthier lives.

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Preface

The adoption and maintenance of healthy lifestyle behaviors and adhering to prescribed therapies are key to optimal health. Four lifestyle behaviors in particular—getting regular physical activity, eating a healthy diet, not smoking, and limiting alcohol consumption—contribute to a longer and healthier life. Indeed, people who engage in all four of these behaviors are significantly less likely to die early from cancer, cardiovascular disease, and other causes compared to people who do not (Ford, Zhao, Tsai, & Li, 2011). Unfortunately, in 2010, 51% of noninstitutionalized American adults had at least one chronic illness; 26% had two or more (Ward & Schiller, 2013). Moreover, chronic illnesses comprised 7 of the top 10 causes of death in 2008 including heart disease, cancer, chronic lower respiratory diseases, stroke, Alzheimer’s disease, diabetes, and kidney disease. Together, these 7 chronic illnesses accounted for approximately 67% of all deaths in the United States (Heron, 2012). It is clear that increased attention to the adoption and maintenance of behaviors for optimal health can have significant public health impact.

The overarching goal of the fourth edition *The Handbook of Health Behavior Change* is to inform health care providers, policy makers, health services, and behavioral, and social science researchers of the most current theories, challenges, and interventions for supporting health behavior change, including lifestyle behaviors and chronic disease management. *The Handbook of Health Behavior Change* was first published in 1988 and with each edition there has been growing appreciation for the critical role health behavior plays in maintaining health and well-being. Research has evolved from a primary focus on understanding predictors of engaging in positive health behaviors and the impact of health behaviors on the onset, progression, and exacerbation of diseases to the evaluation of interventions in controlled clinical trials. Now 25 years later, the themes of the previous editions continue to be relevant. In addition, the fourth edition includes new chapters that reflect current practices in the field of health behavior change, including an emphasis on the need to implement and disseminate interventions in real-world settings and a call for a focus on eliminating ever growing health disparities.

Understanding theoretical frameworks that guide the development of strategies and interventions to achieve change in behaviors and inform health behavior research is the first step in supporting meaningful and lasting health behavior change. Therefore *Section I: Chapters 1 to 3* focus on the most frequently used theoretical models in health behavior change research. While each theory is unique, there are many commonalities among them as well. As such, for the fourth edition this section has been reorganized based on the level at which the theories are operating: individual theories, community and population-based models, and health system models. This new organization allows the reader to better understand the strengths and weaknesses of each model relative to other theories operating on the same level.

Section II: Chapters 4 to 6 provide updated reviews of the factors that predict or serve as obstacles to lifestyle change and adherence. The authors in this section consider individual characteristics, psychosocial factors, and the family, community, and broader social and cultural context. Specific challenges faced by vulnerable populations such as children, adolescents, and the elderly and considerations for interventions at different developmental stages are presented. In addition, the interrelationships among culture, health disparities, and health behavior change and the need to take these into account when designing health behavior change programs and policies are addressed in the context of the growing cultural diversity in the United States.

Lifestyle changes, including the big four noted above (physical activity, nutrition, and tobacco and alcohol use), are the topics of *Chapters 7 to 12 in Section III*. This section provides updated reviews of the challenges in maintaining and changing these behaviors as well as the efficacy of various intervention strategies. Beyond these four lifestyle behaviors, there is a chapter on stress management, given the increasingly recognized role of stress in contributing to the development of chronic illnesses, such as cardiovascular disease and cancer, as well as overall mortality. This chapter provides a review of a variety of approaches for addressing stress that are often integrated into other behavior change interventions. Recognizing that risky lifestyle behaviors most often co-occur and are best considered within the context of their interdependence, the final chapter in this section tackles the complexities of multiple-risk behavior change.

Section IV: Chapters 13 to 18 address the challenges of adhering to lifelong medical regimens. The chapters focus on many of the most prevalent chronic illnesses that contribute to avoidable mortality including cardiovascular disease, diabetes, respiratory diseases (specifically asthma and chronic obstructive pulmonary disease [COPD]), infectious diseases (including HIV, other sexually transmitted diseases, and tuberculosis), cancer, and obesity. These chapters highlight the prevalence of nonadherence to regimen components as well as review the efficacy of interventions to support and improve treatment adherence.

New to the handbook, *Section V: Chapters 19 to 22* focus on the development and evaluation of behavior change interventions implemented within a variety of contexts including community settings such as schools and work places, health care systems, and the built environment. This focus on the environments in which behavior change interventions may take place highlights the opportunities and challenges of working within these systems. It also reflects the growing recognition of the importance of implementation science—that interventions must be developed and evaluated in the contexts in which they will ultimately be disseminated.

Section VI: Chapters 23 and 24 flow nicely from the preceding sections and highlights methodological innovations in health behavior change research. The first chapter focuses on the technological innovations in behavior measurement that have occurred since the third edition. Many new opportunities now exist to objectively measure behavior with less burden and more precision. These innovations are allowing health care providers to begin using these tools in clinical care to shape and modify behavior. Perhaps more than any other innovation, the ongoing development and influence of dissemination and implementation of science theories and methodologies have greatly influenced health behavior research. The final chapter of the handbook highlights the importance of conducting translational research and sets out a framework and set of recommendations for moving the field of behavior change research forward to enhance population health.

Across the different behaviors, illnesses, systems, and populations discussed in each chapter, several cross-cutting themes emerge to guide future research directions. First, interventions need to be developed that are informed by and advance theoretical

models in order to understand the mechanism of change and translate the application of successful interventions to other settings, populations, and behaviors. Second, new and updated theories, interventions, and research methodologies are needed to tackle the complexity of addressing multiple behaviors and challenges concurrently, reflecting the reality that rarely does a person need to change one behavior to improve health or manage a chronic illness, and it is uncertain that there is only one challenge to behavior change. Third, given the profound racial and economic health disparities seen worldwide, it is not surprising that a common theme across the chapters is the need to reduce health disparities. This needs to be accomplished by not only providing culturally sensitive behavior change interventions, but also reducing external barriers by improving access to resources such as health care, nutritious foods, and recreational facilities, and decreasing disproportionate exposure to environmental factors that cause illnesses or exacerbate symptoms. Fourth, a common theme throughout the handbook is that the most efficacious interventions are multicomponent; however, an equally prevalent theme and future direction are needed to make interventions more accessible. Innovative approaches to harmonize these two seemingly opposite themes are needed. Fifth, technology is proposed in many chapters as a potential solution to this challenge, but currently most technology-based solutions are simplistic and much more work is needed in this area. And finally, in addition to specific chapters targeting dissemination of interventions to community and care settings, most chapters note this as a critical area of future research. If we cannot effectively deliver interventions to target audiences, we cannot improve the health of our population.

In total, the fourth edition of *The Handbook of Health Behavior Change* represents an updated and thorough examination of the factors that influence people's ability to change behaviors to enhance their health and the intrapersonal, interpersonal, sociocultural, environmental, systems, and policy factors that can both positively and negatively affect this barrier one makes and one's ability to achieve a desired behavior goal. Beyond understanding predictors, the handbook provides comprehensive reviews of the empirical evidence for various intervention approaches that have been evaluated and offers recommendations for next steps in research to continue to move the field forward. In addition to new and updated information, the fourth edition has been substantially revised to remove redundancy between chapters, and to provide content in a more concise and accessible manner including the addition of learning objectives at the start of each chapter. This book is particularly valuable to students at the graduate and advanced undergraduate level in the fields of public or population health, health communications, medical sociology and anthropology, preventive medicine, and health psychology. The content of the handbook will also be informative to clinical investigators, behavioral and social scientists, and health care practitioners who grapple with the challenges of supporting individuals in their efforts to make well-informed decisions regarding their health-related behaviors, change difficult health habits, and adopt and maintain new behaviors.

REFERENCES

- Boss, E. S., Zizza, C., Isel, J., & Li, C. (2013). Low-cost lifestyle behaviors and all-cause mortality: Findings from the National Health and Nutrition Examination Survey III Morbidity Study. *Journal of Preventive Medicine*, 57(1), 1922–1929.
- Fleming, M. (2012). Deaths leading causes for 2010. *National Vital Statistics Reports*, 66, 1–94.
- Ward, B. W., & Schiller, J. S. (2013). Prevalence of multiple chronic conditions among US adults: Estimates from the National Health Interview Survey, 2010. *Preventing Chronic Disease*, 10, P85.

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I

Theoretical Models of Health Behavior Change

Theories attempt to explain cause–effect relationships and help to provide a basis for understanding and predicting the occurrence of health-related behaviors, behavior change, and maintenance of change. Therefore, they also help to frame the development of strategies and interventions to achieve change in behaviors and guide health behavior research. No single theory is all encompassing, often making it necessary to use multiple theories to understand how to promote specific behavior change. Using a socio-ecological framework as described in Chapter 2 by Fitzgibbon et al. and colleagues we understand that theories are also needed to address each of the multiple levels of influence on behavior, encompassing the levels of genetics, the individual, the population, or environment, community entities such as the health care system, and policies.

Chapters in Section I provide a detailed review of a wide variety of theories and models of behavior and behavior change, including theories addressing factors on the individual level (Chapter 1), on the community or population level (Chapter 2), and those factors in health care systems affecting the health behaviors of patients and the treatment-delivery behaviors of clinicians (Chapter 3). Each chapter emphasizes that none of these levels that affect behavior act on their own; rather, they do so within the context of the others. Therefore, in order to tackle our public health challenges described throughout this book, behavior change depends on a comprehensive approach of intervening on multiple levels.

Chapter 1, “Individual Theories” by Clark and Janevic, provides an overview of six commonly used individual-level theories and models: social cognitive theory, self regulation model, health belief model, theory of planned action, transtheoretical model, and relapse prevention model. It concludes by asking researchers and clinicians to consider “the need for more rigorous testing and subsequent theory modification to move the field forward” and describes how we might do this. The authors call for “taking theory testing and development in new directions to help ensure the relevance of individual-level theories in an environment where a strong evidence base and multi-level, multi-disciplinary approaches are viewed as critical to addressing today’s biggest public health challenges.”

Chapter 2, “Understanding Population Health From Multi-Level and Community-Based Models” by Fitzgibbon, Kong, and Tussing-Humphreys, addresses how socio-ecological models that address the multiple levels of influence on behavior can be used for developing interventions that support healthy lifestyles. The authors note that we must pay attention to the communities in which people live and work, and they discuss

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