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John F. Kelly • William L. White
Editors

Addiction Recovery Management

Theory, Research and Practice

Humana Press

Editors
John F. Kelly
Harvard Medical School
MGH-Harvard Center for Addiction Medicine
Boston, MA
USA
jkelly11@partners.org

William L. White
Lighthouse Institute
Chestnut Health Systems
Bloomington, IL
USA
billlwhite@aol.com

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Foreword

As a Senator, Barack Obama ruffled some feathers when he opined that eigth grade graduation ceremonies were overblown because the kids "weren't done yet." Years later, when we had the privilege to work for President Obama in the White House Office of National Drug Control Policy, his comments came back to us as we contemplated "addiction treatment and drug court graduation ceremonies" during which patients who had completed a residential stay or a drug court term were hugged and cheered in front of weeping relatives. Despite the pomp and circumstance, they too "weren't done yet." Recovery, like education, should not be the subject of closing ceremonies when years of toil, learning, and reward still lay ahead. At some point, it becomes not just unwise but also unethical to promise suffering people and their families otherwise. This volume makes this point in a compelling fashion and provides an exciting alternative path forward in the care of addiction.

As the chapters in this book establish, neuroscientific and epidemiologic evidence, clinical knowledge, and the lived experience of addicted people have long suggested that the course of serious substance use disorders tends to be chronic rather than short-term. Yet over the decades that this evidence about the nature of the illness has accumulated, the fundamental nature of the treatment offered, the insurance provided and the evaluations conducted on the US addiction treatment system remained largely the same. The system is well suited for managing the short-term crises of addiction, stabilizing addicted patients, and providing a small amount of aftercare. Indeed, given the nature of most funding streams, it might be simpler to say that it does precisely what it is paid to do.

Despite those flaws, that system has helped many people, especially when the initial treatment has been the doorway to the grandfather of all "recovery-oriented systems of care," Alcoholics Anonymous. But the more common outcome has been short-term intervention leading to repeated relapses and readmissions. To paraphrase the title of a chapter in this volume, if we had really believed at the outset that addiction were a chronic disorder, we would have designed a much different treatment and recovery support system with meaningful connection to partners in the health care and social welfare systems who provided long-term monitoring and management.

Simply hanging this entire problem on the US addiction treatment system would be both simplistic and unfair. The lack of financially and clinically attractive models for delivering effective continuing medical care is not peculiar to the addiction field – this is a general problem throughout the US health care system. Many diabetic patients cycle in and out of the hospital, many myocardial infarct patients do not receive adequate cardiac rehabilitation, and many asthmatic children are taken regularly by frightened parents to the emergency room. Further, although many people have diagnosed the problems of the acute care oriented addiction treatment system, far fewer have come up with concrete solutions. This book is the first serious effort within our field to answer that call, and the lessons here are potentially valuable for the rest of general health care.

In the pages that follow, national leaders in the recovery field assemble the growing evidence base, put forward specific models of care and, perhaps most importantly, take on directly the enormous system-level challenges of trying to re-engineer sclerotic infrastructure (both physical and philosophical), using inspiring real-world examples from the State of Connecticut and the City of Philadelphia. Though much remains to be done, there is great reason for optimism. First, the passing of the Affordable Care Act (aka "Health-care reform") signals the end of financial and clinical segregation of treatments for mental and substance use disorders from the rest of health care. Second, the rigorous insurance parity regulations contained in the Affordable Care Act and the Paul Wellstone Pete Domenici Mental Health Parity and Addiction Equity Act will help move behavioral health care up from its second-class status within health insurance benefits and reimbursement. The present moment is thus an unprecedented opportunity to expand the quantity and quality of addiction treatment and recovery support services. Yet in the midst of these victories we must simultaneously be humble because the hard truth is that virtually everything we know about long-term recovery management currently fits in a single book, albeit a truly excellent one.

Keith Humphreys
A. Thomas McLellan

Contents

Contributors

Darrin M. Aase, PhD
Center for Community Research, DePaul University and Professor, Psychology Department, DePaul University, Chicago, IL

Ijeoma Achara-Abrahams, PsyD
Department of Behavioral Health and Mental Retardation Services, 1101 Market St., 7th Floor, Philadelphia, PA 19107, USA

Kristen G. Anderson, PhD
Assistant Professor, Department of Psychology, Reed College, Portland, OR

M. Douglas Anglin, PhD
Professor and Associate Director, Department of Psychiatry and Behavioral, UCLA Integrated Substance Abuse Programs, Los Angeles, CA

Michael Boyle, MA
Fayette Companies, 600 Fayette Street, Peoria, IL 61603, USA

Sandra A. Brown, PhD
Department of Psychiatry and Psychology, University of California, San Diego, and Psychology Service VA San Diego Healthcare System, San Diego, CA, USA

Michael L. Dennis, PhD
Senior Research Psychologist and Director of the Global Appraisal of Individual Needs (GAIN) Coordinating Center, Chestnut Health Systems, Bloomington, IL

Robert L. Dupont, MD
Medical Director and President, Institute for Behavior and Health, Rockville, MD

Arthur C. Evans, PhD
Director, Department of Behavioral Health and Mental Retardations Services, Philadelphia, PA

Susan George, PhD
Vice President of Clinical Services, Fayette Companies, Peoria, IL

Mark D. Godley, PhD
Lighthouse Institute, Chestnut Health Systems, 448 Wylie Drive,
Normal, IL 61761, USA

Susan H. Godley, RhD
Senior Research Scientist, Chestnut Health Systems, Bloomington, IL

Yih-Ing Hser, PhD
Department of Psychiatry and Behavioral Sciences,
UCLA Integrated Substance Abuse Programs,
1640 S. Sepulveda Blvd., Suite 200, Los Angeles, CA 90025, USA

Keith Humphreys, PhD
VA Palo Alto Health Care System and Stanford University
School of Medicine, Stanford, CA

Leonard A. Jason, PhD
Psychology Department, Center for Community Research, DePaul University,
990 W. Fullerton Ave., Chicago, IL 60614, USA

Lee Ann Kaskutas, DrPH
Alcohol Research Group, Public Health Institute, 6475 Christie Avenue,
Suite 400, Emeryville, CA 94608, USA

John F. Kelly, PhD
Massachusetts General Hospital, Center for Addiction Medicine,
60 Staniford Street Suite 120, Boston, MA 02114, USA

Joan Kenerson King, APRN-BC
Owner, Joan Kenerson King Consulting and Counseling,
Consultant Department of Behavioral Health/Mental Retardation Services,
Philadelphia, PA

Thomas A. Kirk, PhD
Department of Mental Health and Addiction Services,
100 Sorghum Hill Drive, Cheshire, CT 06410, USA

David Loveland, PhD
Director of Research, Fayette Companies, Peoria, IL

James R. Mckay, PhD
Center on the Continuum of Care in the Addictions,
University of Pennsylvania, 3440 Market Street,
Suite 370, Philadelphia, PA 19104, USA

Tom Mclellan, PhD
Director Treatment Research Institute, and Professor of Psychiatry,
University of Pennsylvania School of Medicine, Philadelphia, PA

Rudolf H. Moos, PhD
Stanford University and Department of Veterans Affairs,
Center for Health Care Evaluation, 795 Willow Rd. (152-MPD),
Menlo Park, CA 94025, USA

David G. Mueller, PhD
Center for Community Research, DePaul University and Professor,
Psychology Department, DePaul University, Chicago, IL

Bradley D. Olson, PhD
National Louis University, Chicago, IL

Danielle E. Ramo, PhD
Postdoctoral Scholar, University of California, San Francisco, CA

Christy K. Scott, PhD
Lighthouse Institute, Chestnut Health Systems, 720 W. Chestnut Street,
Bloomington, IL 61701, USA

Gregory E. Skipper, MD
Alabama Physician Health Program (Medical Director),
Medical Association of the State of Alabama, 19 S. Jackson St,
Montgomery, AL 36104, USA

Meenakshi Subbaraman, MS
Pre-Doctoral Fellow, Alcohol Research Group and PhD Candidate,
Division of Epidemiology, School of Public Health, University
of California Berkeley, CA

Phil Valentine
Connecticut Community for Addiction Recovery, Hartford, CT, USA

Lisa Walt, PhD
Center for Community Research, DePaul University; Professor,
Psychology Department, DePaul University, Chicago, IL

William L. White, MA
Lighthouse Institute, Chestnut Health Systems, Bloomington, IL, USA

Chapter 1
Introduction: The Theory, Science, and Practice of Recovery Management

William L. White and John F. Kelly

Abstract Today, almost 14,000 specialized addiction programs treat approximately two million individuals a year in the United States. This treatment spans a wide diversity of settings, levels of care, service philosophies, and techniques. However, most share an acute-care model of intervention, characterized by a single episode of self-contained and unlinked intervention focused on symptom reduction and delivered within a short timeframe. Impressions are given that long-term recovery should be achievable following such acute intervention. This model is now being challenged, and calls are increasing to extend the design of addiction treatment to a model of sustained recovery management that is comparable to how other chronic primary health disorders are effectively managed. *Recovery management* is a philosophy of organizing treatment and recovery supports to enhance early engagement, recovery initiation and maintenance, and the quality of personal/family life in the long-term. This chapter provides an overview of this book highlighting the theory, science, and practice of recovery management and exploring how it is being incorporated into larger "systems transformation" processes. This is the first academic text designed specifically to focus on recovery management as a philosophy of professional treatment and a framework for recovery management.

Keywords Addiction treatment models · Acute-care · Recovery management · Systems of care · Chronic illness

Introduction

An elaborate system of inebriate homes and asylums, private addiction cure institutes, religiously sponsored missions and inebriate colonies, and bottled and boxed "home cures" for alcohol and drug addiction flourished in the United Sates during the

W.L. White (✉)
Lighthouse Institute, Chestnut Health Systems, Bloomington, IL, USA
e-mail: bwhite@chestnut.org

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mid-nineteenth century only to collapse in the opening decades of the twentieth century [1]. A new generation of addiction treatment and recovery advocates coalesced in the mid-twentieth century to lay the foundation for the resurrection of modern addiction treatment. What began as two social movements (one focused on alcoholism and the other focused on narcotic addiction and rising youthful "polydrug abuse") were subsequently integrated, professionalized, commercialized, and supported by federal, state, and local governments, as well as private systems of healthcare reimbursement. Today, almost 14,000 specialized addiction programs treat approximately two million individuals a year at an annual cost in the range of 11 billion dollars [2, 3]. This treatment spans a wide diversity of institutional settings, levels of care, service philosophies, and service techniques which are collectively supported by administrative, management, regulatory, education, training, and research infrastructures that have become industries in their own right.

References to these thousands of direct service and support institutions as a specialized "system of care", however, grossly misrepresent their level of integration or even coordination. Yet, most of these programs do have something in common; they share an acute-care (AC) model of intervention that has dominated specialized addiction treatment. White and McLellan [4] define this model in terms of seven core characteristics:

- Services are delivered "programmatically" in a uniform series of encapsulated activities (screening, admission, a single-point-in-time assessment, a short course of minimally individualized treatment, discharge, and brief "aftercare" followed by termination of the service relationship).
- The intervention is focused on symptom elimination for a single primary problem.
- Professional experts direct and dominate the assessment, treatment planning, and service delivery decision making.
- Services transpire over a short (and historically ever-shorter) period of time – usually as a function of a prearranged, time-limited insurance payment designed specifically for addiction disorders and "carved out" from general medical insurance.
- The individual/family/community is given the impression at discharge ("graduation") that "cure has occurred": long-term recovery is viewed as personally self-sustainable without ongoing professional assistance.
- The intervention is evaluated at a short-term, single-point-in-time follow-up that compares pretreatment status with discharge status and posttreatment status, months – or at best a few years – following professional intervention.
- Posttreatment relapse and readmission are viewed as the failure (noncompliance) of the individual rather than possible flaws in the design or execution of the treatment protocol.

That acute-care model is now being challenged. There is a revolution underway in the design and delivery of addiction treatment in the United States. That revolution promises to change how severe alcohol and other drug (AOD) problems and the people experiencing such problems are viewed and treated.

The impetus for such change comes from multiple sources. A new recovery advocacy movement is calling for addiction treatment to become reconnected to the larger and more enduring process of personal and family recovery [5]. Frontline practitioners lament working in addiction treatment institutions that seem to care more about margin (financial profit and regulatory compliance) than mission (recovery outcomes) – more about a progress note signed by the right color of ink than whether those being served are actually making progress [6]. Research critiques of addiction treatment from within the field are calling for a "fundamental shift in thinking" [7], a "paradigm shift" [8], a "seismic shift rather than a mere tinkering" [9], and a "sea change in the culture of addiction service delivery" [10]. Administrative, regulatory, and funding authorities are calling for a redesign of addiction treatment in response to a growing population of individuals repeatedly recycling through addiction treatment at great cost with no measurable long-term recovery outcomes. After two decades of hearing the treatment industry's central mantra, "Treatment Works," most know someone for whom addiction treatment did not work and the public at large has grown weary of the rich and famous regularly cycling into "rehab." Addiction treatment's probationary status as a social institution is set to be severely tested.

Within this cultural and professional context, calls are increasing to extend the design of addiction treatment from a model of acute biopsychosocial stabilization to a model of sustained recovery management that is comparable to how other chronic primary health disorders are effectively managed.

> *Recovery management* is a philosophy of organizing addiction treatment and recovery support services to enhance early prerecovery engagement, recovery initiation, *long-term* recovery maintenance, and the quality of personal/family life in long-term recovery [11].

There are simultaneous calls to embrace these recovery management philosophies within larger recovery-oriented systems of care.

> *Recovery-oriented systems of care* are networks of indigenous and professional support designed to initiate, sustain, and enhance the quality of *long-term* addiction recovery for individuals and families and to create values and policies in the larger cultural and policy environment that are supportive of these recovery processes. The "system" in this phrase is not a federal, state, or local agency, but a macro-level organization of the larger cultural and community environment in which long-term recovery is nested [11].

The purpose of this book is to provide a primer on the theory, science, and practice of recovery management and to explore how recovery management is being incorporated into larger behavioral health "systems transformation" processes. This movement has until now been chronicled only on the pages of scientific journals and government monographs, through papers posted on recovery advocacy web sites (e.g., Faces and Voices of Recovery) and through presentations at professional conferences. This is the first academic text designed specifically to explore recovery management as a philosophy of professional treatment and a framework for recovery self-management.

Part I includes several chapters that cover seven foundational premises of recovery management:

1. AOD problems present in transient and chronic forms; sustained recovery management is not appropriately applied to the former, but is particularly well suited for the latter. Not everyone with an AOD problem needs sustained recovery management support, or needs to the same degree, but persons with high personal vulnerability, high problem severity/complexity, and low recovery capital[1] will benefit greatly from sustained and assertive forms of monitoring and support.
2. The course of severe substance-use disorders and their successful resolution can span decades. This is highlighted in detail in Chap. 2 by Hser and Anglin who provide a theoretical and data-based presentation of addiction and recovery trajectories spanning decades.
3. Severe AOD problems have been long depicted as a "chronic, progressive disease" but have been treated primarily as an acute condition resembling the treatment of traumatic injury or a bacterial infection [13, 14].
4. Recovery from severe substance-use disorders is enhanced through assertive linkages from formal addiction treatment services to indigenous recovery supports in the community. In Chap. 3, Lee Ann Kaskutas and Meenakshi Subbaraman describe such linkages and the long-term resulting benefits. (In Part II, Godley provides research findings on assertive approaches with young people).
5. The course of addiction and the process of long-term recovery can be explained in large part by a variety of social processes that have commonalities across multiple theories. In Chap. 4, Rudolf Moos discusses how the social processes associated with several prominent theories are reflected in the active ingredients that underlie how community contexts, especially family members, friends, and mutual-help groups promote relapse, remission, and recovery.
6. Most people discharged from addiction treatment are precariously balanced between recovery and readdiction in the weeks, months, and year following their discharge ([15], See [11] for a review).
7. Strategies used in the treatment of other chronic health conditions can be adapted to enhance long-term recovery outcomes for severe substance-use disorders. In Chap. 5, White and Kelly describe how such strategies constitute significant changes in the current core services practices of addiction treatment.

Part II summarizes scientific studies that support the movement toward sustained recovery management. Christy Scott and Michael Dennis highlight the results of a series of experiments utilizing posttreatment recovery checkups with adults as a strategy of long-term recovery support. The chapters by Sandra Brown and colleagues, and Mark Godley, review the research that has been conducted on long-term recovery trajectories of adolescents followed up across the high-risk substance use period of emerging adulthood and that provides evidence for assertive linkage approaches to posttreatment continuing care for adolescents. In the concluding chapters in Part II, Leonard Jason and colleagues note the emergence

[1]Recovery capital encompasses the quantity and quality of internal and external resources that can be mobilized to initiate and sustain recovery from addiction [12].

of new recovery support institutions and review the studies his research group has conducted on the growing network of Oxford Houses in the United States, and James McKay summarizes the outcomes of the scientific studies that have been conducted to evaluate the effects of continuing care interventions for adults.

Part III moves from the theoretical conceptualization and research studies related to recovery management to the real-world efforts to implement recovery management and recovery-oriented systems of care. In Chaps. 11 and 12, Kirk and Achara-Abrahams and colleagues describe the recovery-focused systems transformation effort each has led, respectively, in the State of Connecticut and the City of Philadelphia. In Chap. 13, Boyle describes the rationale, methods, and outcomes linked to the implementation of a recovery management philosophy within a local behavioral health-care organization in Peoria, Illinois. In Chap. 14, Valentine describes the peer-based recovery support services piloted within the Connecticut Community of Addiction Recovery – a grassroots recovery advocacy and support organization. In the final chapter in Part II, DuPont and Skipper describe the Physician Health Program (PHP) as a model of extended recovery management that has generated the highest recovery rates in the scientific literature. They suggest that major elements of the PHP could be adapted for mass application to addiction treatment programs throughout the United States.

Part IV contains a final chapter in which Kelly and White discuss recovery management and the future of addiction treatment. They draw six key conclusions:

1. RM and ROSC are part of a larger shift toward a recovery paradigm reflected in growth and diversification of recovery mutual aid groups, new recovery support institutions, and a new recovery advocacy movement that reflects the cultural and political awakening of individuals and families in recovery.
2. The addiction treatment industry has oversold the long-term recovery outcomes that can be achieved for people with severe AOD problems from a brief episode of professionally directed biopsychosocial stabilization.
3. The acute-care model is culturally, economically, and politically unsustainable.
4. Approaches of sustained recovery management hold great promise in enhancing long-term recovery outcomes for persons with severe substance-use disorders and low natural recovery capital.
5. The process of transforming addiction treatment from an acute-care model to a model of sustained recovery management is already underway as evidenced by federal, state, and local "systems transformation" efforts and growing calls for a recovery-focused research agenda to guide and support these transformation efforts.
6. That transformation effort will take years to achieve and, as work in the State of Connecticut and the City of Philadelphia illustrate, will involve sustained processes of conceptual alignment, practice alignment, and contextual alignment (policy, regulations, funding mechanisms, and stakeholder relationships).

The future of addiction treatment as a social institution may rest with its ability or inability to move toward treatment of addiction via a model of sustained recovery management.

In closing this introduction, we would like to acknowledge and thank all of the authors who contributed to this volume. Their collective efforts have exerted an enormous influence on the evolution of modern addiction treatment and recovery. We would also like to thank Julie Yeterian, Sarah Dow, and Julie Sloane for their help in the preparation of this volume.

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Part I
Theoretical Foundations of Recovery Management

Chapter 2
Addiction Treatment and Recovery Careers

Yih-Ing Hser and M. Douglas Anglin

Abstract Recovery from addiction is a complex and dynamic process, with considerable variations across individuals. Despite historical and recent surge of interest in recovery among many stakeholders in the addiction field, empirical research on recovery has been limited. The varying definitions of recovery across different stakeholder groups best illustrate the wide-ranging thinking on recovery, yet how recovery is conceptualized, promoted, and achieved has important implications for how treatment systems should be structured, delivered, and evaluated. The concept of addiction as a chronic illness is redefining the fundamental way we view drug abuse and its treatment. Currently, many efforts are directed toward determining how to provide a continuity of treatment and how to measure if treatment systems are successfully addressing addiction as a chronic disease. In this chapter, we describe empirical patterns of drug use trajectories over the life course, discuss the diverse ways of conceptualizing recovery, and identify key aspects of addiction that require attention as we investigate and treat addiction to promote long-term, stable recovery.

Keywords Addiction recovery management · Addiction recovery · Addiction as a chronic illness · Continuity of care

Introduction

Illicit drug use continues to be a top public concern, directly or indirectly affecting individuals, families, and communities, with detrimental effects that may persist across generations. Patterns of substance abuse are extremely heterogeneous, with

Y.-I. Hser (✉)
Department of Psychiatry and Behavioral Sciences, UCLA Integrated Substance Abuse Programs, 1640 S. Sepulveda Blvd., Suite 200, Los Angeles, CA 90025, USA
e-mail: yhser@ucla.edu

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many individuals having used drugs and stopped the use, but for others, addiction becomes a chronic and recurring condition [1–6], oftentimes spanning decades of an individual's lifetime [3–5, 7]. While various treatment options are now available and have been shown to be effective, most treatment effects are short-lived. Many dependent users cycle through several treatments before they achieve more stable recovery, resulting in prolonged adverse consequences associated with addiction. The traditional acute care model of drug abuse treatment appears ill suited to address the chronic condition. As such, focus has increasingly turned toward embracing long-term and continuity-of-care models for understanding and treating drug addiction [3, 8, 9]. Meanwhile, the field is increasingly interested in recovery, shifting from the focus on pathology to more positive outcomes such as well-being or quality of life [10, 11]. Recovery-oriented systems of care have been emerging, promoted, and in several states, implemented [12].

Recovery from addiction is a complex and dynamic process, with considerable variations across individuals. Despite historical and recent surge of interest in recovery among many stakeholders in the addiction field, empirical research on recovery has been limited. The varying definitions of recovery across different stakeholder groups best illustrate the wide-ranging thinking on recovery, yet how recovery is conceptualized, promoted, and achieved has important implications for how treatment systems should be structured, delivered, and evaluated. Consequently, while the vision to broadening the systems of care to support long-term recovery is admirable, strategies for implementation remain to be developed and effectiveness empirically investigated. In this chapter, we describe empirical patterns of drug use trajectories over the life course, discuss the diverse ways of conceptualizing recovery, and identify key aspects of addiction and recovery that require attention as we investigate and treat addiction as a chronic disease and move toward a recovery-oriented system of care that supports long-term, stable recovery.

We describe and discuss relevant issues from a life course perspective, which uses a more integrated systems approach to studying substance abuse and recovery. This perspective takes into account varied and multiple factors that might contribute to abstinence, relapse, or stable recovery, which will be helpful given the complex nature of substance use and its dynamic interplay with various social systems [9]. The approach complements the shift in the treatment and research paradigms from short-term "snapshots" of substance use and treatment episodes to long-term developmental patterns of behavior and outcomes over time, and it takes into consideration factors that may shape or be shaped by these pathways.

A Life Course Conceptual Framework

The life course perspective has roots in the social sciences, and its application to addiction most closely resembles the approach applied in the developmental criminology research studying criminal careers. Key life course concepts include

developmental trajectories, transitions and turning points, and their relationships to one another. The life course approach applied in the study of drug use emphasizes long-term patterns of continuity and change that can be both gradual and radical in relation to transitions in terms of social roles (e.g., parent, offender) over the life span [9, 13]. This approach is particularly appropriate given the now widely accepted perspective that drug addiction is a chronic and recurring condition for many, which necessitates a chronic disease management view [6].

Elder [14] defines life course as interconnected trajectories as people age. Trajectories are interdependent sequences of events in different life domains. In the developmental criminology literature, Sampson and Laub [15] refer to trajectories as "long-term patterns and sequences of behavioral transition" (p. 351), which are affected by the degree of *social capital* (individuals' interpersonal relations and institutional ties, i.e., to family, work) available to an individual [16]. Social capital is important because personal change does not happen in a vacuum, but it is influenced by the social context that can facilitate or impede recovery from addiction; the resources developed through the structure and functions of social relationships are part of an individual's "recovery capital" [17, 18]. Transitions are changes in stages or roles (e.g., getting a new job; becoming abstinent) that are short term. Some transitions can lead to turning points that engender long-term behavioral change. The essential characteristic of a turning point is that it redirects a trajectory; it is not simply a temporary detour [19].

Recovery involves a lifestyle change, which implies a long-term commitment that is consistent with the life course perspective. From the life course perspective, questions about the process of transition into recovery concern whether the initiation of recovery is a drawn-out process versus a dramatic transformation, and whether those changes are triggered by critical events as turning points. Questions about maintaining recovery include whether there are variations in the recovery trajectory and what are the underlying factors or mechanisms. Identifying what constitutes a turning point toward recovery is of great interest. The life course perspective also has the advantage of recognizing developmental stage as protective and risk factors may differ across the life span. Thus, the life course perspective offers a rich source of theoretical concepts, terminologies, and measures for the study of addiction and recovery careers.

Drug Use Trajectories

Guided by the life course perspective, we have conducted several studies to empirically investigate developmental trajectories of drug use [5, 20]. It is important to note that whereas drug use persists over the lifespan for some, for others it may decelerate gradually or dramatically and then may cease entirely, or it may exhibit a recurring pattern of repeated acceleration and deceleration with periods of abstinence. Longitudinal studies that allow the depiction of long-term patterns of

drug use, however, are limited. Below, we use data from our own studies and those in the public domain to illustrate empirical findings of the overall drug use trajectories for both the general population and drug-dependent samples, followed with distinctive trajectories among drug users.

Drug Use Trajectories Among the General Population

Based on the National Survey of Drug Use and Health (NSDUH), marijuana is the most prevalently used drug in the general population. While substance use generally peaks in the late teens to young adulthood (Fig. 2.1), most drug use begins before age 15 [21]. To further illustrate the longitudinal patterns of alcohol and drug use among the general population, we analyzed the National Longitudinal Survey of Youth (NLSY79). NLSY79 is a nationally representative sample of 12,686 young men and women who were 14–22 years old when they were first surveyed in 1979 [22]. Individuals were surveyed annually from 1979 to 1994 and biennially from 1996 to the present. The survey has collected extensive information about youths' labor market behaviors, and in certain years, about alcohol and drug use. Heavy alcohol use (more than six drinks in one occasion) is the most prevalent problem among the general population, followed by marijuana, cocaine, and heroin use, which is consistently at a very low level. As shown in Fig. 2.2, alcohol and marijuana use peeked during the teens, and cocaine use occurred mostly during young adulthood; use of all substances gradually declines as the cohort aged, although declines covered different age periods and occurred at different rates over time.

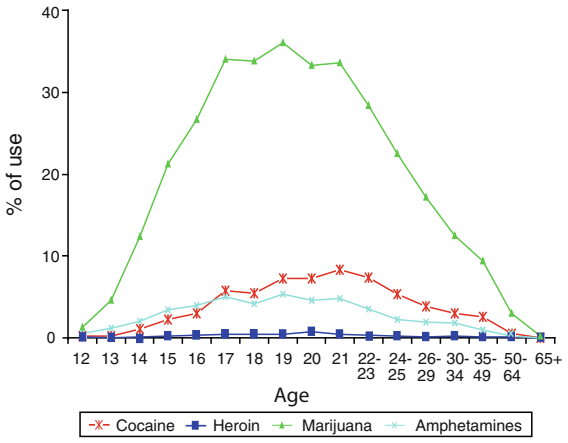

Fig. 2.1 Past-year drug use by age (National Survey of Drug Use & Health, 2002, $N = 54{,}079$)

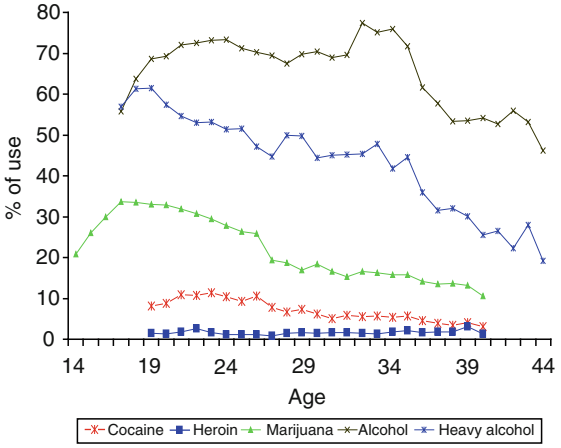

Fig. 2.2 Past-year alcohol and drug use over time (National Longitudinal Survey of Youth, NLSY79, $N = 12{,}686$)

Drug Use Trajectories Among Drug-Dependent Users

In contrast to the use patterns among the general population, research findings have generally shown that severe or dependent users tend to persist in their drug use, often for substantial periods of their lifespan. The UCLA Center for Advancing Longitudinal Drug Abuse Research (CALDAR) has accumulated data from several long-term follow-up studies. Using CALDAR data combined from five longitudinal studies ($N = 1{,}797$), we were able to compare the trajectories of primary heroin, cocaine, and methamphetamine (meth) use over the first 10 years after initiation [20, 23]. The study findings showed that heroin addiction is characterized by long periods of regular use (13–18 days per month over 10 years), while stimulants such as cocaine (8–11 days) and meth (around 12 days) are generally used at a lower frequency and are reflective of an episodic pattern (e.g., weekend users) (see Fig. 2.3). The use of alcohol and marijuana also persisted, although generally at a lower level than the primary drug. Despite the varying levels of use, the group means of use for all three types of primary drugs appear to suggest a persistent pattern of use over a long period of time (e.g., at least for the first 10 years of the addiction careers observed in the study), which supports the chronic nature of addiction to heroin, cocaine, and meth. These findings also suggest that the treatment activities and approaches for individuals with a diagnosis of opiate addiction (almost daily use) should be different from that for those dependent on stimulants (episodic use).

Distinctive Trajectories Among Drug Users

Although our work and other studies often show convergent findings on the persistence of drug use typically over a long period, some addicts may cease their

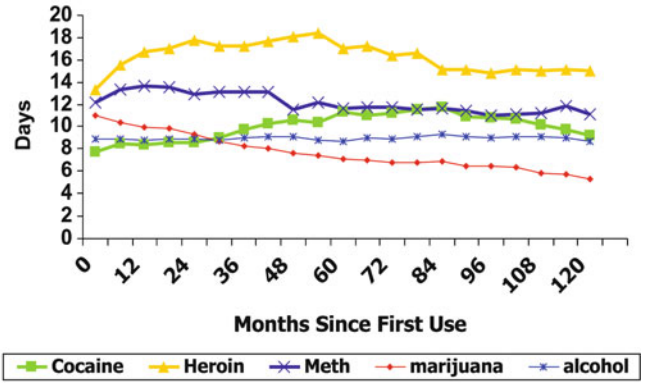

Fig. 2.3 Days using per month over 10 years since first use ($N = 1{,}797$)

drug use careers earlier than others [5]. Recent advances in analytic methods, particularly the application of growth mixture modeling in the analysis of longitudinal data, have allowed researchers to identify distinct trajectories of behavior over extended time [24–27]. Examples of this methodology include applications to the study of developmental trajectories of cigarette smoking [28, 29], alcohol use [30], and marijuana use [31, 32] from adolescence to young adulthood. These studies generally demonstrate the importance of examining subgroups, particularly their associated risk factors and subsequent outcomes.

Applying growth mixture modeling to the CALDAR longitudinal dataset ($N = 1{,}797$), we were able to reveal heterogeneous trajectory groups (Fig. 2.4): those who prolonged their drug use at a relatively low level (on average, less than once per month; 5% of the sample) or at a moderate level (about 5 days per month; 35%); those who decreased (14%) or increased (14%) drug use over long periods of time; and yet others who persisted in high levels of use (about 15 days per month; 30%) even over decades [20]. Heroin users were most likely to be in the high-use group (52%), and cocaine (50%) and meth (35%) users are most likely to be in the moderate-use group. Drug users in the high-use group had the earliest onset of arrest and primary drug use, spent the longest time incarcerated and the shortest time employed, and many of them (44%) had their first drug treatment in prison. In contrast, users in the low-use group were the smallest group and were oldest when first arrested, spent the least time in prison, and had the longest duration of employment.

Other studies on the onset of drug use have shown that adolescents who begin drug use at early ages typically use drugs more frequently, escalate to higher levels of use more quickly, and are more likely to persist in using [33, 34]. Similarly, we have also found that users who persistently used a high level of heroin, cocaine, or meth had earlier onsets of use of these drugs [35]. Most importantly, while quitting drug use can be facilitated by formal treatment and/or self-help participation, few people (about 25%) had these experiences in the 10 years following first use [20]. We turn back to this point later when we discuss the treatment and cumulative treatment effects.

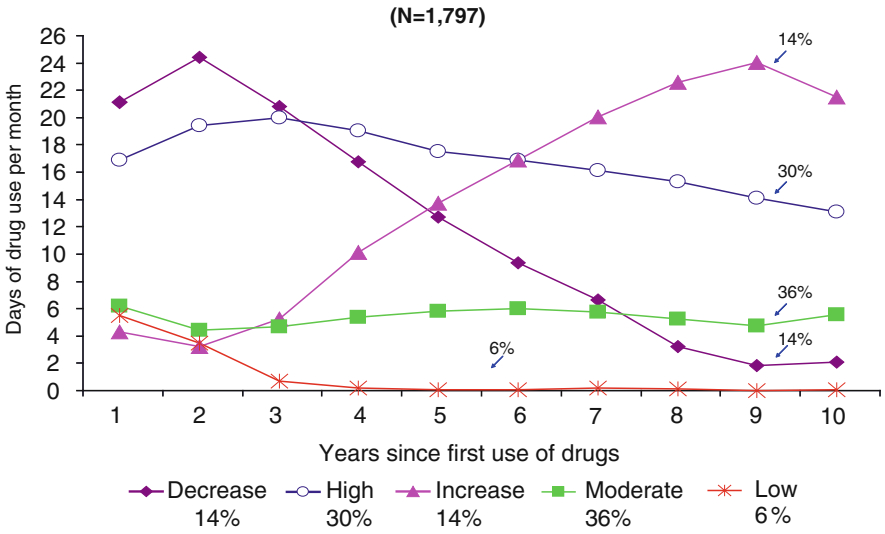

Fig. 2.4 Five distinctive drug use trajectories ($N = 1{,}797$)

Recovery Careers

Until recently, stable cessation and recovery has received little attention in drug abuse research. Thus, it is not surprising that despite the theoretical and policy importance of understanding why people initiate recovery and are able to maintain recovery, we do not have robust conceptual models or rich empirical investigations of recovery.

Conceptualization and Definitions of Recovery

Although the topic of recovery has been around for decades, a recent surge in interest has inspired the first serious attempts to define recovery from addiction. In defining recovery, some stakeholders consider abstinence from illicit drug use to be the only factor in determining recovery, while others believe recovery requires abstinence from alcohol and tobacco as well as any other drugs. Yet others suggest that recovery should be more broadly defined and that improved health and quality of life (e.g., employment) should be the primary criteria [10–12, 36, 37]. In 2005, the Substance Abuse and Mental Health Services Administration's Center for Substance Abuse Treatment (SAMHSA/CSAT) held a National Summit on Recovery, which convened over 100 individuals representing a variety of stakeholders in the addiction treatment and recovery field. While it was acknowledged that individuals may choose to define recovery differently, as a starting point for further discussion, the consensus definition embraced the concept of recovery as *a process of change through which an individual achieves abstinence and improved health, wellness, and quality of life* [12].

Apparently, the meaning and measures of these concepts need to be developed or operationalized for research purposes. For example, when does recovery begin and how long must abstinence be maintained for a person to be considered fully "recovered?" Some maintain that individuals who intend to make changes be considered "in recovery," while most others take into consideration a certain period of time (e.g., 1–2 years) of abstinence and/or improvement in other life domains. Some studies have suggested that 5 years of abstinence may be critical to indicate the likelihood of a "complete" recovery [35, 38]. These different ways of viewing or defining recovery have implications not only for research but for how treatment systems should be structured, delivered, and evaluated to optimize recovery.

Long-Term Follow-Up Studies Informing Recovery

Long-term follow-up studies on substance use and addiction have been limited, and most of those that exist are based on treatment cohorts. Although natural recovery or spontaneous recovery (i.e., recovery without treatment) is possible and likely widespread particularly among less severe users [39], most literature reviewed in this chapter is based on treatment samples where most empirical data are available. Results of these long-term follow-up studies generally show that relapse is problematic even after decades and that the risk of death is high [4]. Abstinence rates vary by the duration criteria used in studies. In a 10-year follow-up study of 200 alcoholics who received inpatient treatment, 51% were abstinent at the time of the follow-up but only 10% reported being abstinent for 3 or more years [40]. Based on an 8-year follow-up study, Dennis et al. [38] reported on the outcomes among a cohort of 1,326 substance users receiving treatment. At the follow-up, 501 (or 37.8%) were abstinent from alcohol and illicit drugs, of them 142 individuals (10.7% of the sample) had been abstinent for at least 3 years, and only 77 (or 5.8%) had been abstinent for 5 years or more. In a 12-year follow-up of cocaine-dependent sample [41], 22.3% tested positive for cocaine, and slightly more than one half (51.9%) had achieved stable recovery by maintaining abstinence from cocaine for more than 5 years. In a 33-year follow-up study [4], we examined life course cessation among heroin addicts and showed that eventual cessation of heroin use is a slow process and may not occur for some older addicts. Opiate use patterns of the cohort were remarkably stable; by 50–60 years of age, only about half of the sample interviewed tested negative for heroin.

Predictors of Recovery

Besides treatment and self-help group participation, few studies have examined the predictors of recovery. It seems obvious that the longer the period of nonuse, the less likely it is that an individual will relapse [4, 42, 43]. Several studies have found

that social and personal resources that persons possess can be instrumental in overcoming substance dependence.

Studies by Scott et al. [45] support that cumulative time of abstinence is a strong predictor of future recovery. They found that the duration of abstinence at a given interview was among the best predictors of maintaining abstinence over the subsequent year, with the likelihood of sustaining abstinence for another 12 months increasing from 36% among those with less than a year of abstinence to 86% among those with 3 or more years of abstinence. Yet even after 3–7 years of abstinence, 14% per year continued to relapse. As the length of abstinence increased, days in employment increased, with commensurate reduction in the number of days of incarceration, the amount of crime, high-cost service utilization (e.g., emergency department, hospital, jail), and their consequent costs to society [44, 45]. Similarly, based on our 33-year follow-up data, we examined the likelihood of eventual cessation of heroin use (during the period between 1985/86 and 1996/97) associated with the lengths of abstinence before the 1985/86 interview [4]. The rate of abstinence in 1996/97 was 15.3% among the 85 subjects who reported active use at the 1985/86 follow-up, was 16.7% among the 66 who reported abstinence for up to 5 years, 75% among the 36 men who reported abstinence for 6–15 years, and 72.2% among the 34 men abstinent for more than 15 years. Thus, increased durations of abstinence predict future abstinence, yet even among those abstinent for as long as 15 years, one-quarter had eventually relapsed at the subsequent observation point.

Using a cross-sectional design, Laudet et al. [46] conducted a survey with 51 individuals between the ages of 23 and 74 in various stages of recovery and found that those with long-term (vs. short-term) abstinence were more likely to have experienced hitting bottom (e.g., more consequences and poor quality of life). Engagement in 12-step was also important after the initiation of abstinence. Another qualitative study [17] included 46 individuals who overcame their addiction to alcohol and drugs without treatment. The study found that these individuals' recovery process appeared to be typically triggered by assorted personal problems, experienced as turning points for the desire to change, which was then sustained with ongoing strategies such as alternative activities, changing social networks, and increased reliance on family and nonusing friends.

Scott et al. [45] also reported that treatment predicted recovery initiation but not maintenance. Conversely, 12-step participation predicts maintenance of abstinence but not initiation. On the other hand, Moos and Moos [47] compared the long-term remission among treated and untreated drinkers and reported a 62% remission rate in helped drinkers compared with 43% in the drinkers who did not seek help from treatment services. In the untreated group, those who improved had more personal resources and fewer alcohol-related deficits, leading the authors to conclude that the likelihood of relapse rises in the absence of personal and social resources that reflect maintenance factors for stable remission.

Hser [35] compared and contrasted the recovery group (defined as abstinent for at least 5 years prior to the interview at the 33-year follow-up) and the nonrecovery groups. The two groups did not differ in deviant behaviors and family/school

problems in their earlier lives. Both groups tried formal treatment and self-directed recovery ("self-treatment"), often many times. While the nonrecovered addicts were significantly more likely to use substances in coping with stressful conditions, to have spouses who also abused drugs, and to lack non-drug-using social support, stable recovery 10 years later was predicted only by ethnicity, self-efficacy, and psychological well-being. These findings suggest that in addition to early intervention efforts to curtail heroin addiction, increasing self-efficacy and addressing psychological problems are likely to enhance the odds of maintaining long-term stable recovery.

Theory-Based Processes Promoting Recovery

As noted in the above literature, there are many predictors of recovery from substance use disorders, although most predictor identification research has not been guided by theory [48]. Focusing on protective resources that may facilitate recovery, Moos [48] examined four relevant theories and identified their common elements. These theories are the social control theory, behavioral economics and behavioral choice theory, social learning theory, and stress and coping theory. The common social processes indicated by these theories include the provision of support, goal direction, and monitoring, engagement in rewarding activities other than substance use, exposure to abstinence-oriented norms and models, and attempts to build self-efficacy and coping skills. These social processes enhance the development of personal and social resources that protect individuals against the reemergence of substance use and abuse. Dr. Moos noted that these findings are similar to factors shown to aid recovery in long-term follow-up of men with alcohol use disorder identified by Vaillant [49, 50]. These considerations have implications for tailoring treatment and continuing care to strengthen the protective resources that promote recovery.

Studies in the criminal careers research, on the other hand, have suggested that developmental transitions (e.g., into adolescence or adulthood) and critical life events (e.g., employment, marriage, military service) are turning points that modify life trajectories and redirect behavior paths. In examining trajectories of offending over the life course of delinquent males followed from ages 7 to 70, Sampson and Laub [51] found that while crime declined with age for all offender groups, childhood prognoses account poorly for long-term trajectories of offending. Instead, the dynamics of life course transitions and turning points were better determinants of long-term outcomes.

Similarly, in the 33-year follow-up study of heroin addicts, we tested several hypotheses regarding stable recovery from heroin use [36]. Problems with family and school in earlier life did not predict recovery in later life periods, even though they are often demonstrated to be key risks for later problems in life in other studies. Our findings of the high prevalence of continued heroin use in this aging sample and the lack of association of older age with recovery are consistent with others that

have suggested that the concept of maturing out does not apply to many heroin addicts [52–54]. The substitution hypothesis also received little support from our data, as most recovered individuals in our sample demonstrated lower levels of use of alcohol or other drugs [4], in contrast to those of the nonrecovered individuals. Our findings are consistent with prior studies on relapse documenting that negative emotional states (depression, anxiety) and lack of constructive coping skills are risk factors, while self-efficacy and adequate social support are protective factors in maintaining stable recovery.

Individuals cope with stressors through their identified and preferred coping strategies, and what seems to separate the two groups is that the recovery group was more likely to have a non-drug-using supportive network, to use substance-free strategies to cope with stressful conditions, and to have greater self-confidence and determination to stay away from heroin, while the nonrecovery group relied on drugs to deal with stress. Thus, developing stress-coping strategies, identifying personal and social resources, and engaging in prosocial activities should all be considered as parts of effective strategies for achieving and maintaining stable recovery. Such findings also provide empirical support for relapse prevention interventions and clinical practice that incorporate these components.

The life course perspective suggests further theoretical consideration that takes into account the issue of life stages. For example, both the developmental criminology and our long-term follow-up study of heroin addicts found that childhood prognoses do not account for long-term trajectories. The CALDAR longitudinal dataset also demonstrates few earlier experiences in deviant behaviors and family or school problems predicted distinctive patterns of trajectories [9], suggesting that predictors of recovery status for different groups may vary depending on the stage of the life course. These phenomena could be due to dynamics of turning points over individuals' life course or due to risk and protective factors changing across life stages. These theoretical alternatives need to be further examined in future research to more precisely ascertain determinants of recovery or their relative importance.

Addiction Treatment

While there are many pathways to recovery and formal treatment is only one discrete aspect to recovery, effective treatment can facilitate recovery. Evaluation studies consistently support the effectiveness of drug abuse treatment [1, 3, 55–57]. At the same time, high relapse rates and readmission to treatment raise the question: Is drug abuse treatment based on an acute care model suited to address the chronic condition? Noting the similarities between chronic addiction and other chronic illness, the field has increasingly called for shifting to the chronic care or management approach akin to the model used in the treatment of other chronic conditions [6, 9, 58]. In this section, we describe the state of addiction treatment, its effectiveness, and current movement toward a recovery-supported system of care.