MASSACHUSETTS GENERAL HOSPITAL
PSYCHIATRY ACADEMY

Sustaining Successful Remission Recovery

MGH Psychopharmacology

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RECOVERY RESEARCH INSTITUTE

MASSACHUSETTS GENERAL HOSPITAL

HARVARD MEDICAL SCHOOL TEACHING HOSPITAL

Disclosures

Neither I nor my spouse/partner has a relevant financial relationship with a commercial interest to disclose.

Outline

Rationale - How did we get here? A rationale for the new public health and scientific focus on sustained remission and recovery

Recovery Support Services and Recovery Capital – facilitating supportive environments and recovery capital

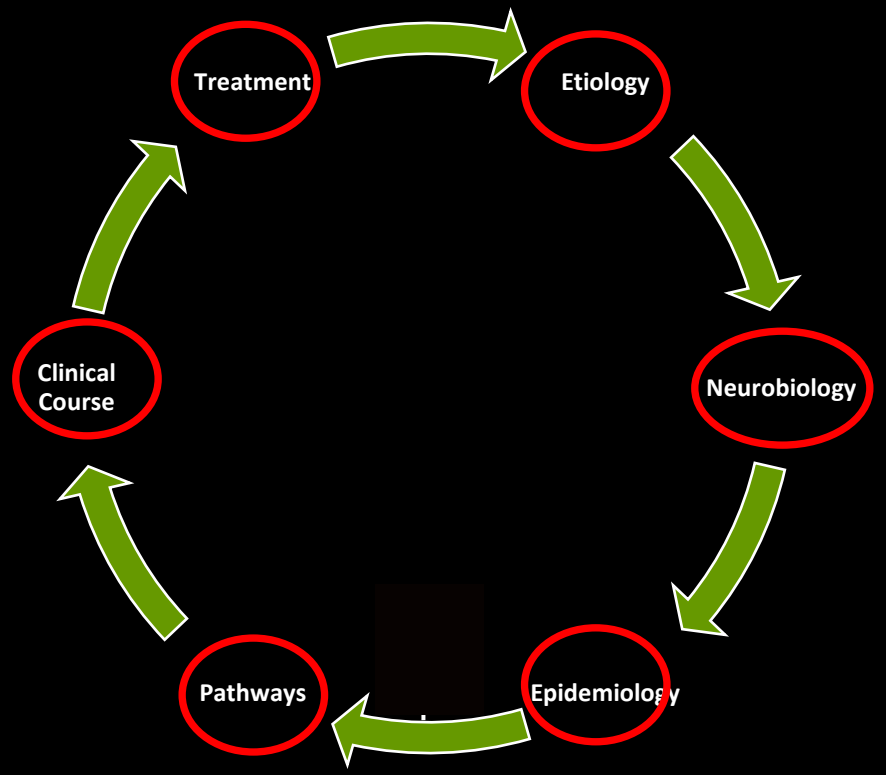
Recovery Process – Recovery milestones and their utility. Who needs what, when, for how long, at what intensity?

Insights - Some novel findings from research

50 years…..
1971-2021

The “war on drugs” was part of a U.S. national and global concerted effort to reduce “supply” but also “demand” that created a massive prison building program but also treatment and public health-oriented agencies that have produced important insights into addiction…

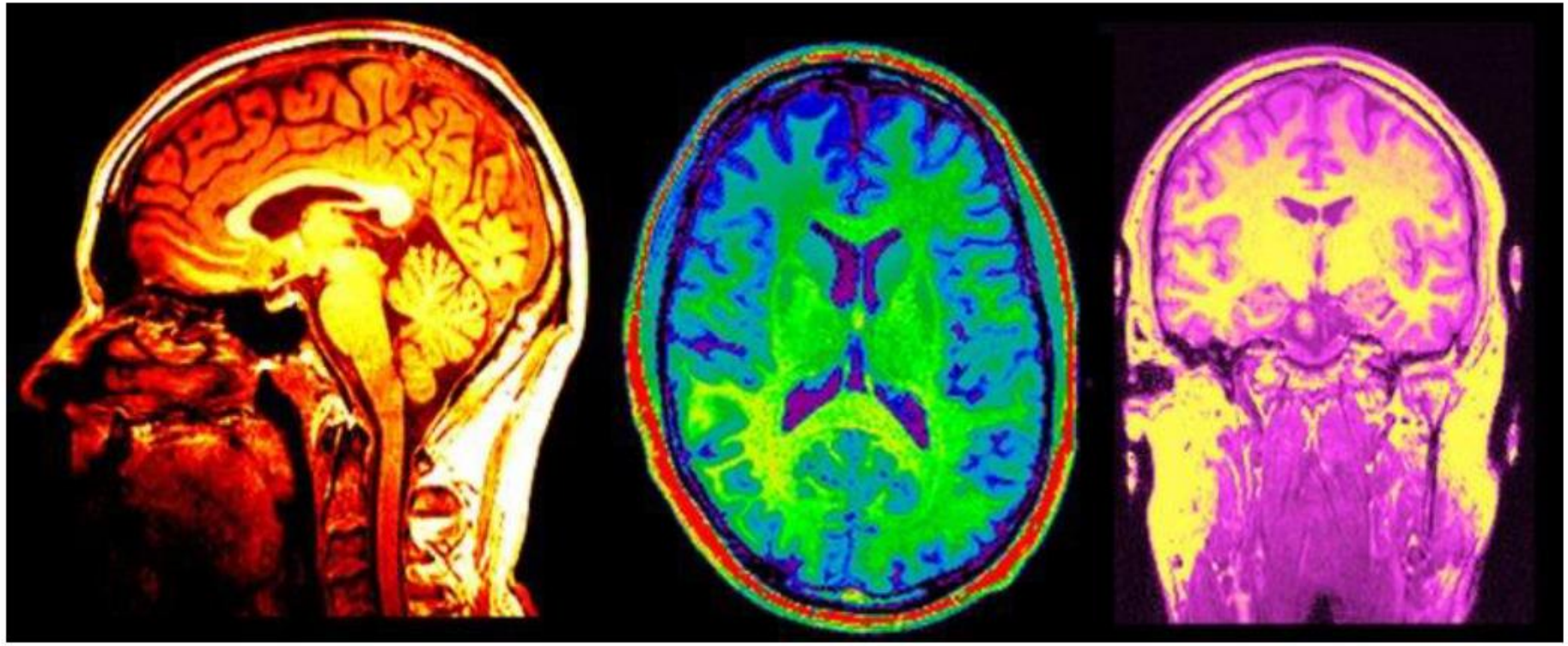
Past 50 yrs since declaration of “War on drugs” led to large-scale federal appropriations and a number of paradigm shifts…



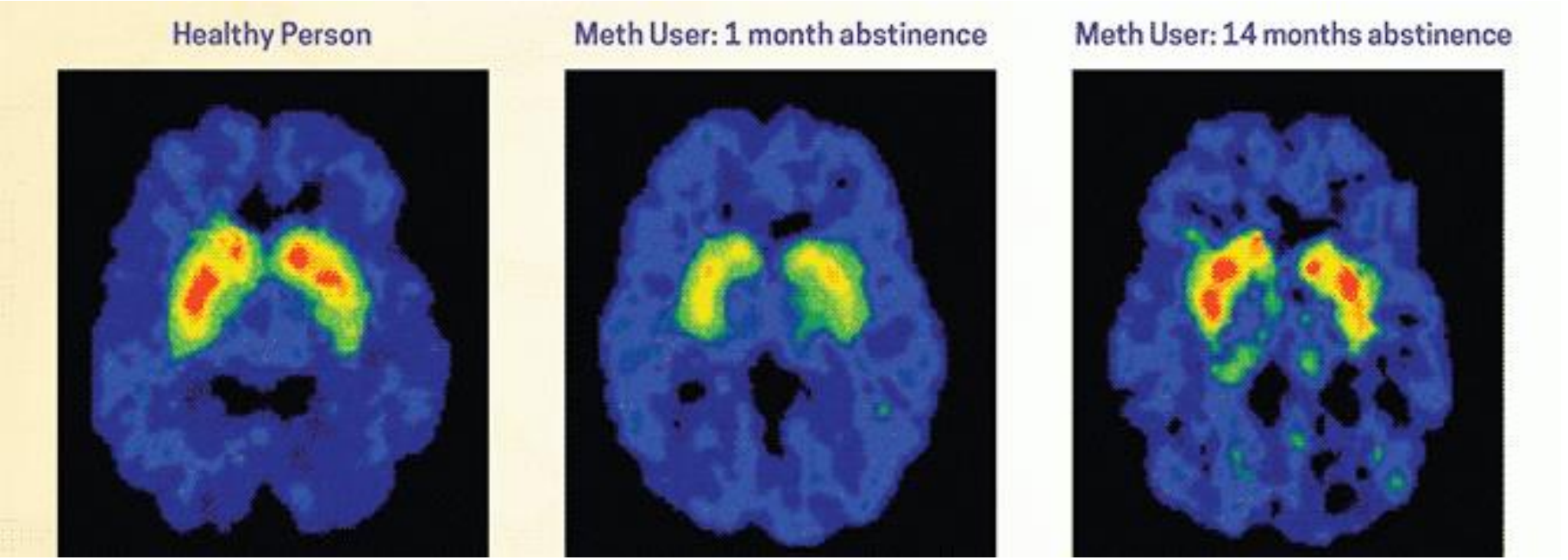
Paradigm Shifts

Genetics, Genomics, Pharmacogenetics

Neuroscience: Neural plasticity



Changes in the brain with abstinence



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STAGES OF CHANGE

RELATED TREATMENT & RECOVERY SUPPORT SERVICES

PRECONTEMPLATIVE

In this stage, individuals are not even thinking about changing their behavior. They do not see their addiction as a problem: they often think others who point out the problem are exaggerating.

CONTEMPLATIVE

In this stage people are more aware of the personal consequences of their addiction & spend time thinking about their problem. Although they are able to consider the possibility of changing, they tend to be ambivalent about it.

PREPARATION

In this stage, people have made a commitment to make a change. This stage involves information gathering about what they will need to change their behavior.

ACTION

In this stage, individuals believe they have the ability to change their behavior & actively take steps to change their behavior.

MAINTENANCE

In this stage, individuals maintain their sobriety, successfully avoiding temptations & relapse.

HARM REDUCTION
* Emergency Services (i.e. Narcan)
* Needle Exhanges
* Supervised Injection Sites

SCREENING & FEEDBACK
* Brief Advice
* Motivational Interventions

SREENING, BRIEF INTERVENTION, & REFFERAL TO TREATMENT (SBIRT)

CLINCAL INTERVENTION
* Phases/Levels (e.g., inpatient, residential, outpatient)
* Intervention Types
  - Psychosocial (e.g. Cognitive Behavioral Therapy)
  - Medications: Agonists (e.g. Buprenorphine, Methadone) & Antagonists (Naltrexone)

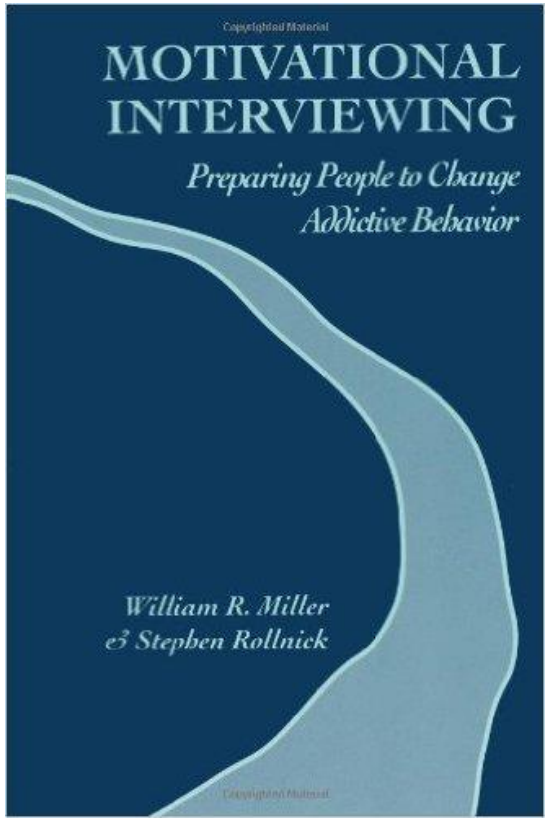
NON-CLINICAL INTERVENTION
* Self-Management/Natural Recovery (e.g. self-help books, online resources)
* Mutal Help Organizations (e.g. Alcoholics Anonymous, SMART Recovery, Lifering Secular Recovery)
* Community Support Services (e.g. Recovery Community Centers, Recovery Ministries, Recovery Employment Assistance)

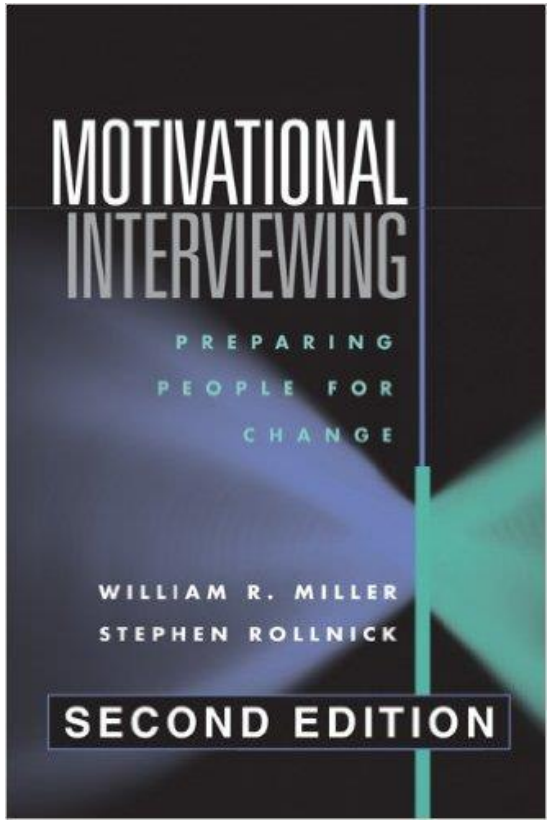
CONTINUING CARE (3m- 1 year)
Recovery Management Checkups, Telephone Counseling, Mobile Applications, Text Message Interventions

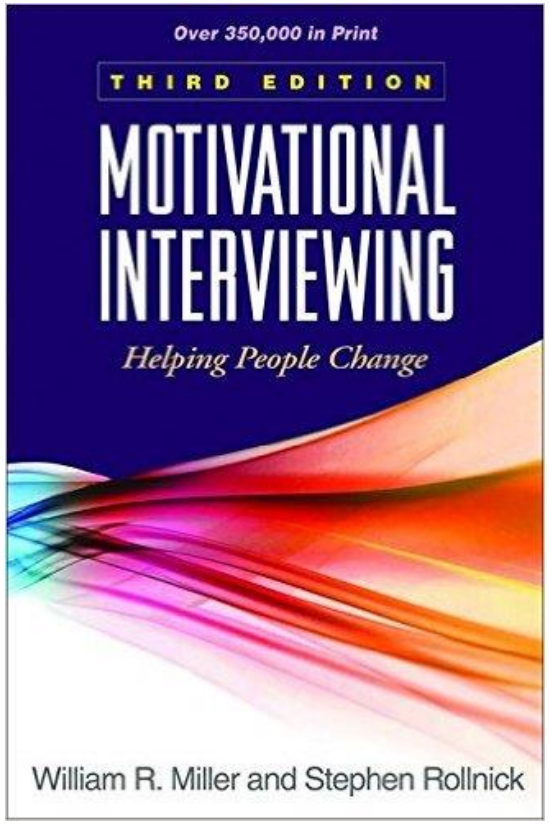
RECOVERY MONITORING (1-5+ yrs)
Continued Recovery Management Checkups, Therapy visits, Primary Care Provider Visits

Harm Reduction Strategies

- Anti-craving/anti-relapse medications (“MAT”)
- Overdose reversal medications (Narcan)
- Needle exchange programs
- Heroin prescribing
- Overdose prevention facilities (safe Injection facilities)



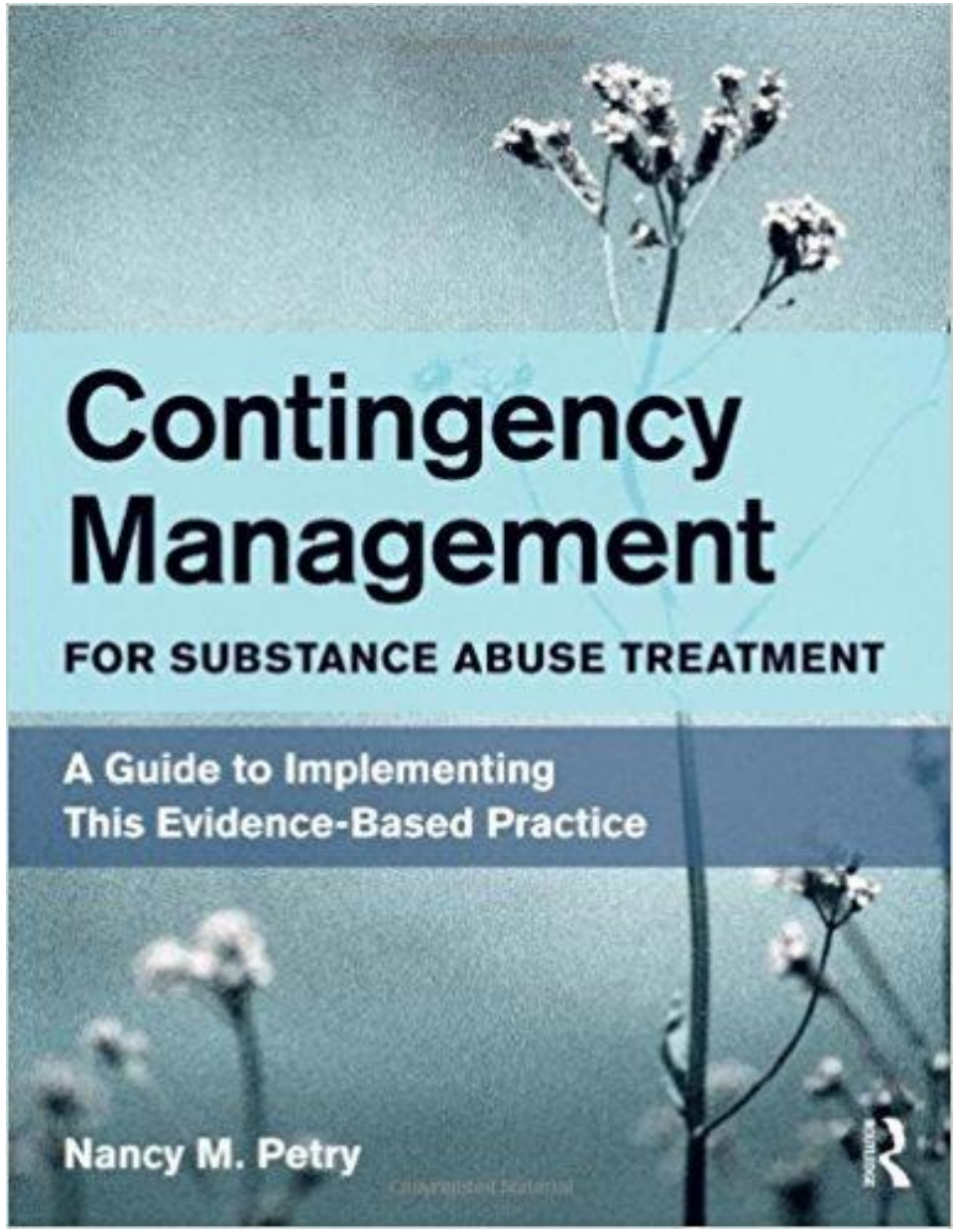


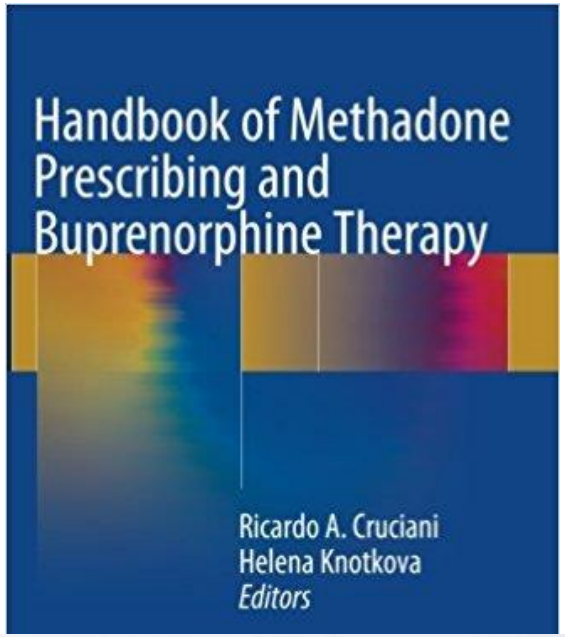


What people really need is a good listening to…

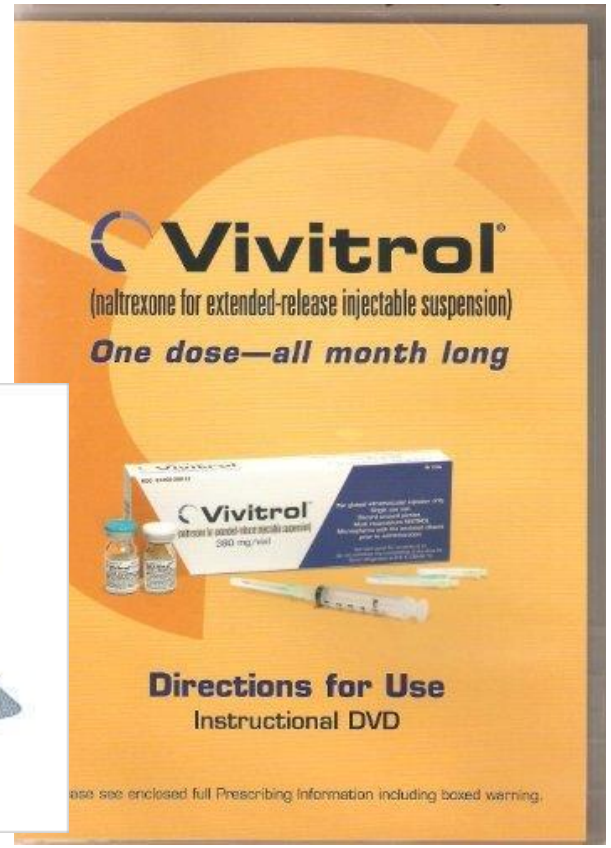
“Quitting smoking is easy, I’ve done it dozens of times” –Mark Twain

Swift, certain, modest, consequences shape behavioral choices…




Handbook of Methadone Prescribing and Buprenorphine Therapy
Ricardo A. Cruciani
Helena Knotkova
Editors

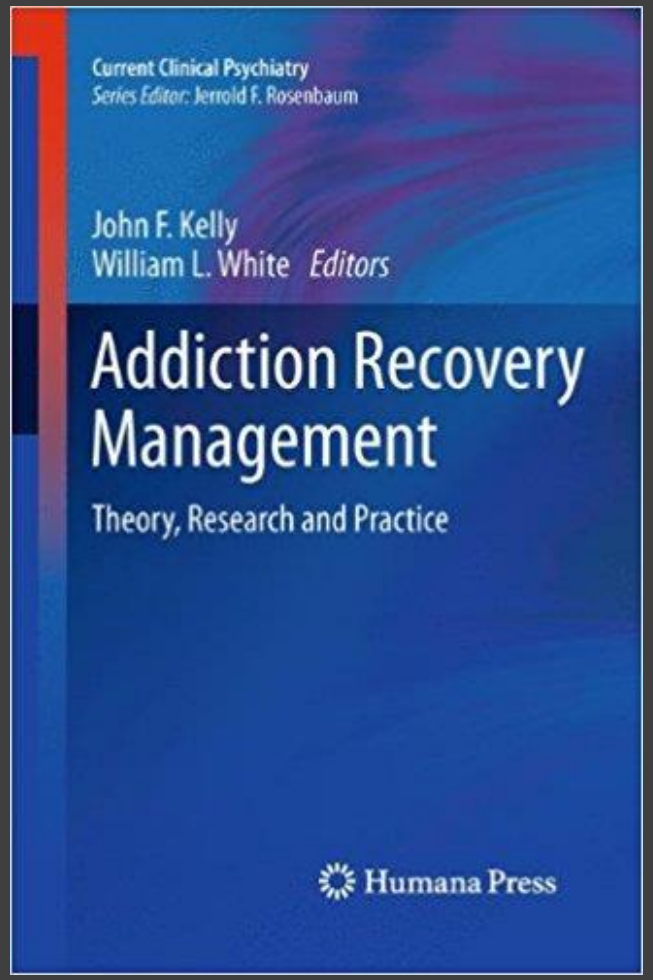
50 mg
REVIA
(naltrexone hydrochloride) Tablets
For Oral Use


Vivitrol
(naltrexone for extended-release injectable suspension)
One dose—all month long
Directions for Use
Instructional DVD
see enclosed full Prescribing Information including boxed warning.

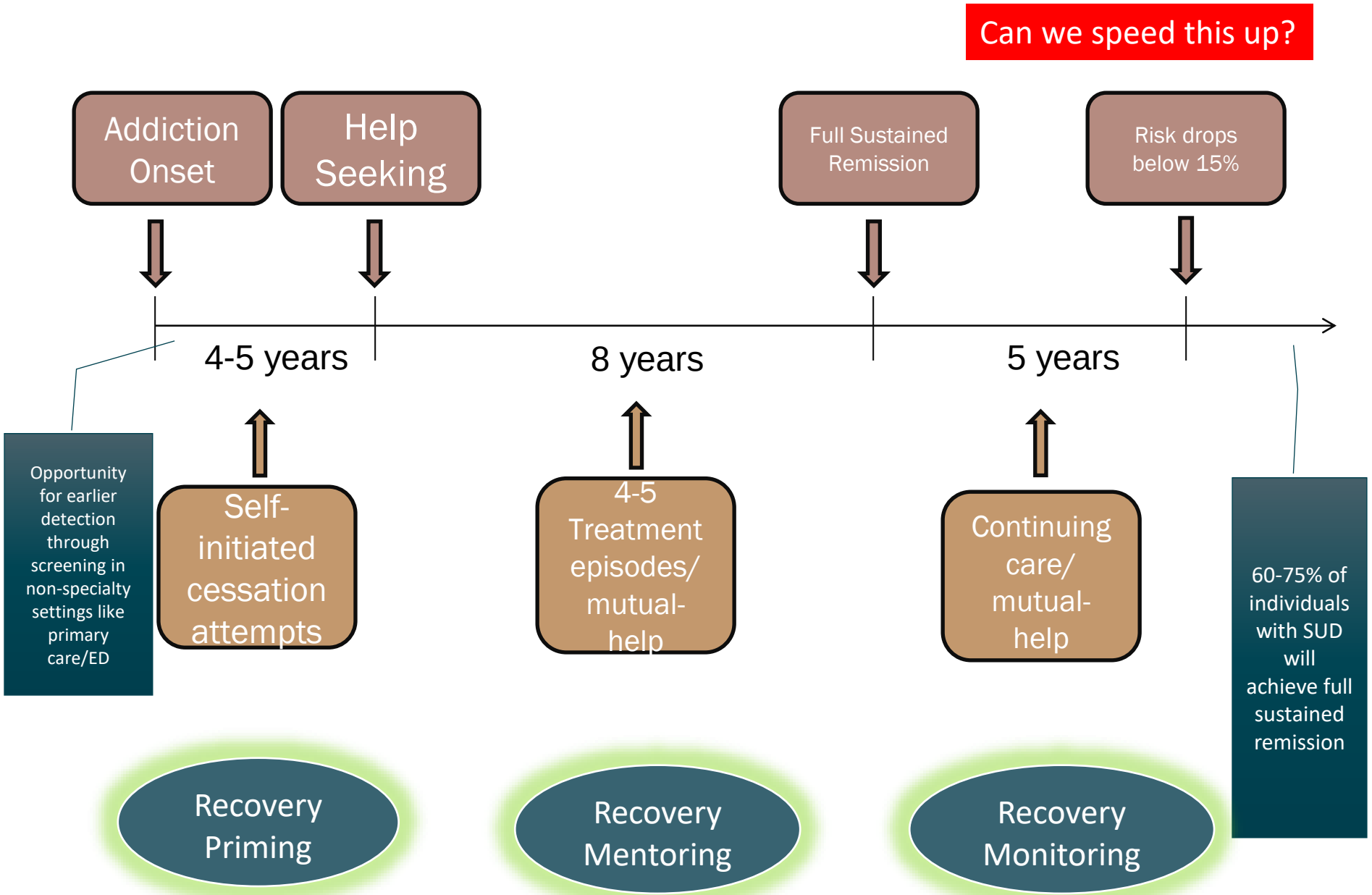
Disulfiram Tablets I.P.
SUFITAL
SUFITAL

NDC 12496-1208-1
1 sublingual film
8 mg/2 mg
Suboxone®
(buprenorphine and naloxone) sublingual film
8 mg/2 mg
Rx only
Children who accidentally take SUBOXONE will need emergency medical care. Keep SUBOXONE out of the reach of children.
Do not cut, chew or swallow sublingual film.
suboxone.com

glenmark
NDC 68462-435-18
ACAMPROSATE CALCIUM
DELAYED-RELEASE
TABLETS
333 mg
Rx Only
180 Tablets


Current Clinical Psychiatry
Series Editor: Jerrold F. Rosenbaum
John F. Kelly
William L. White Editors
Addiction Recovery Management
Theory, Research and Practice
Humana Press

The clinical course of addiction and achievement of stable recovery can take a long time …



50 years of Progress: Burning building analogy…

- **<u>Putting out the fire</u>** –addressing acute clinical pathology - good job
- **<u>Preventing it from re-igniting</u>** (RP) - emphasized - pragmatic disconnect…
- **<u>Building materials</u> (recovery capital) – mostly** neglected
- **<u>Scaffolding</u> (building skills and support beyond acute stabilization)**
- **<u>Granting "rebuilding permits"</u>** - (removing barriers - neglected)

More rapid initial achievement and maintenance of stable remission may occur through attending BOTH to clinical pathology AND environmental and resource deficits….(“recovery capital”) AND legal/other barriers

Recovery Capital is multi-faceted

Individual

(coping, motivation, self-efficacy)

Social

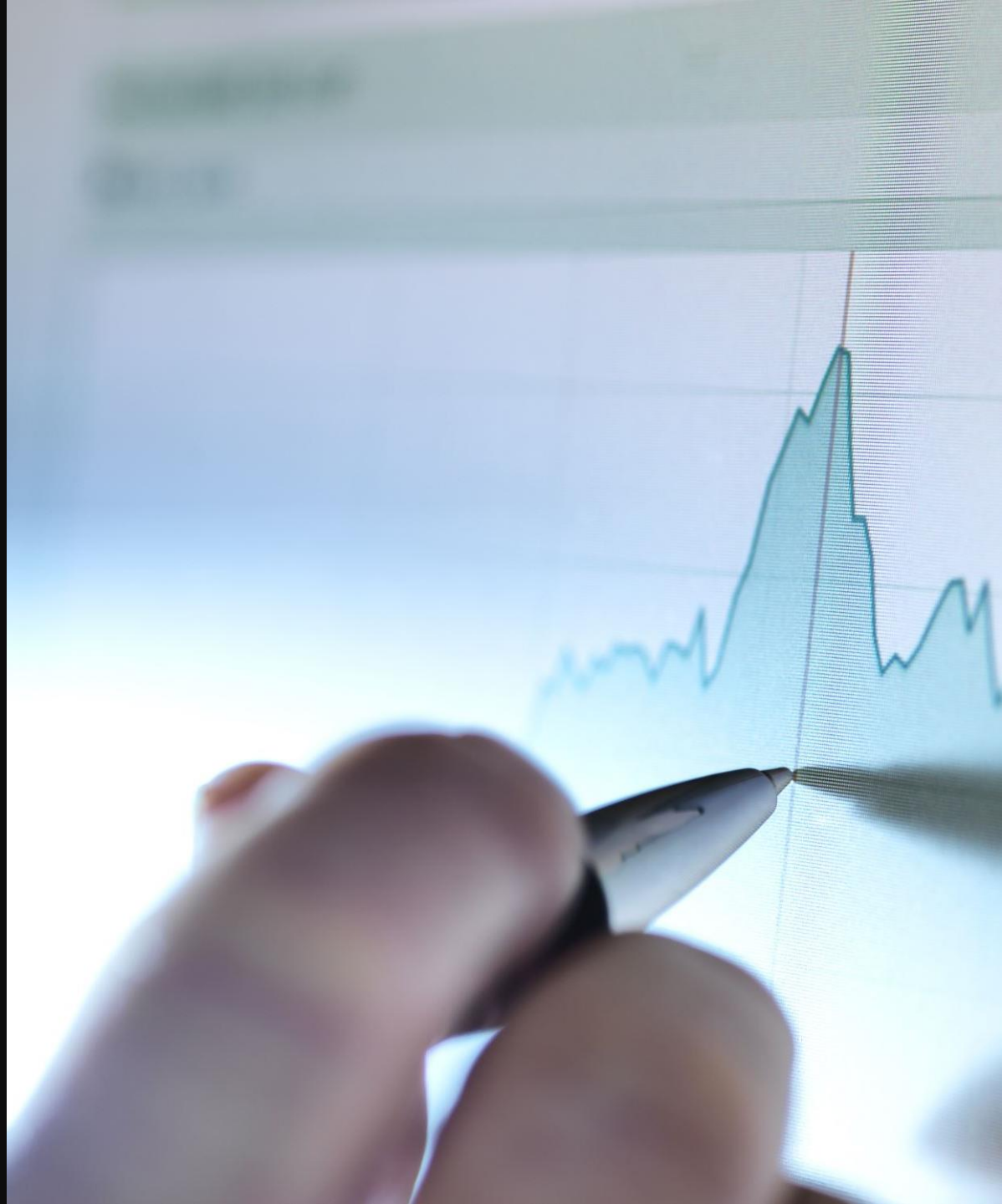
(recovery-specific/family, friends)

Financial

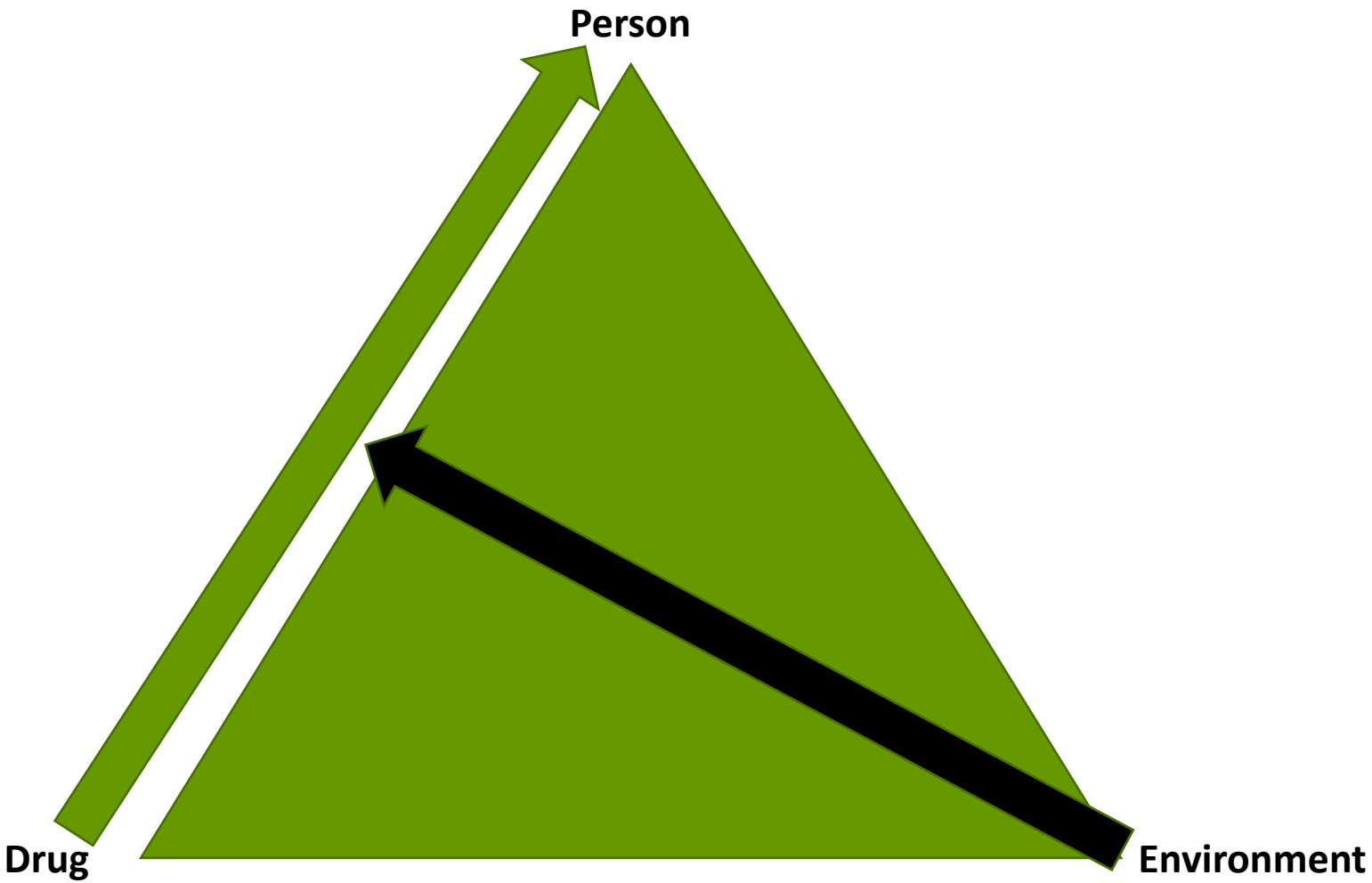
(income, resources)

Cultural

(identity, values)



Only so much we can do to address deficits within the organism itself at any one time…

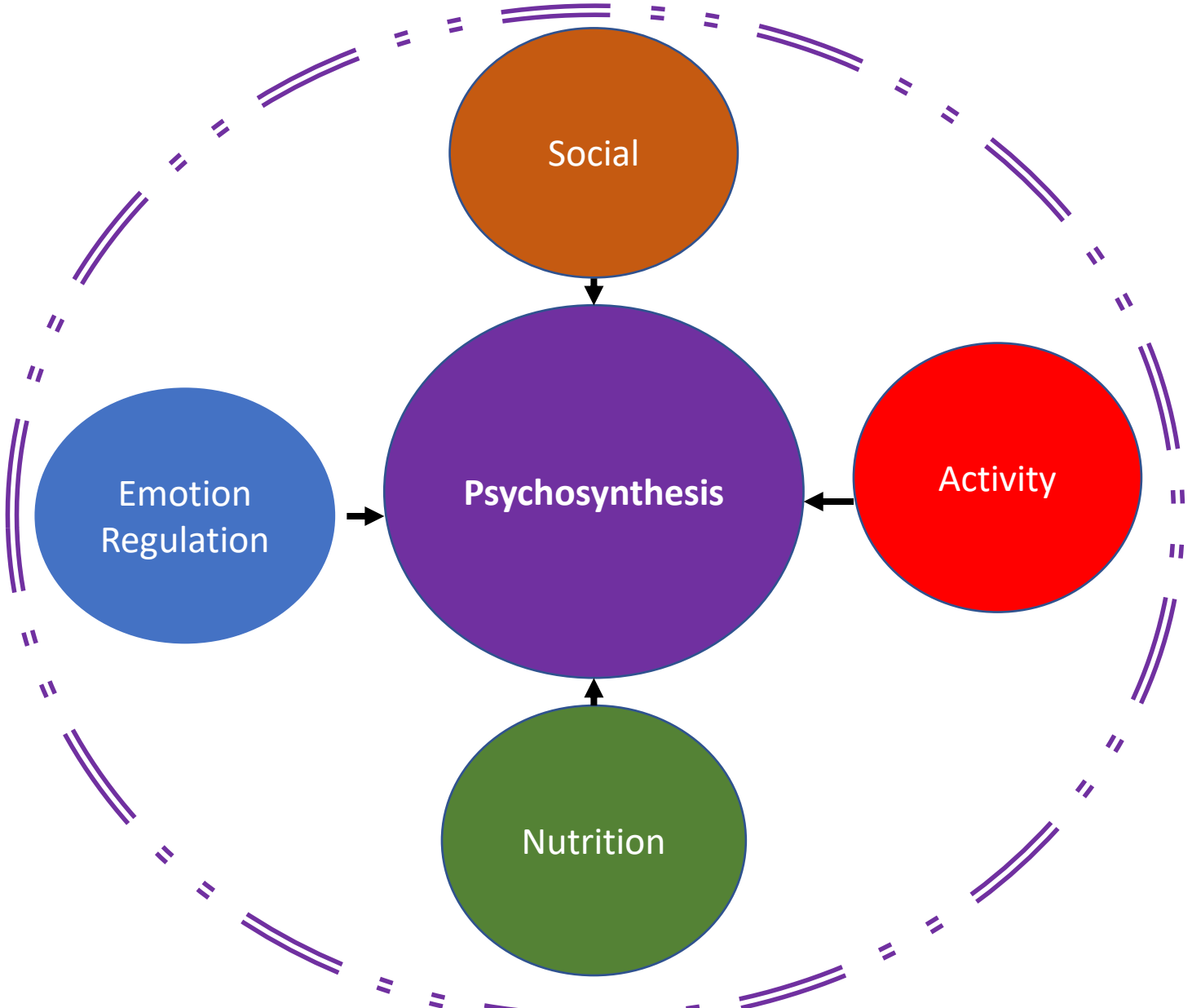

Person
Drug
Environment

How Organisms Recover

Photosynthesis

Psychosynthesis

Psychosynthesis: A Social Activity Nutrition Emotion Regulation (SANER) Approach to Recovery



Social

Activity

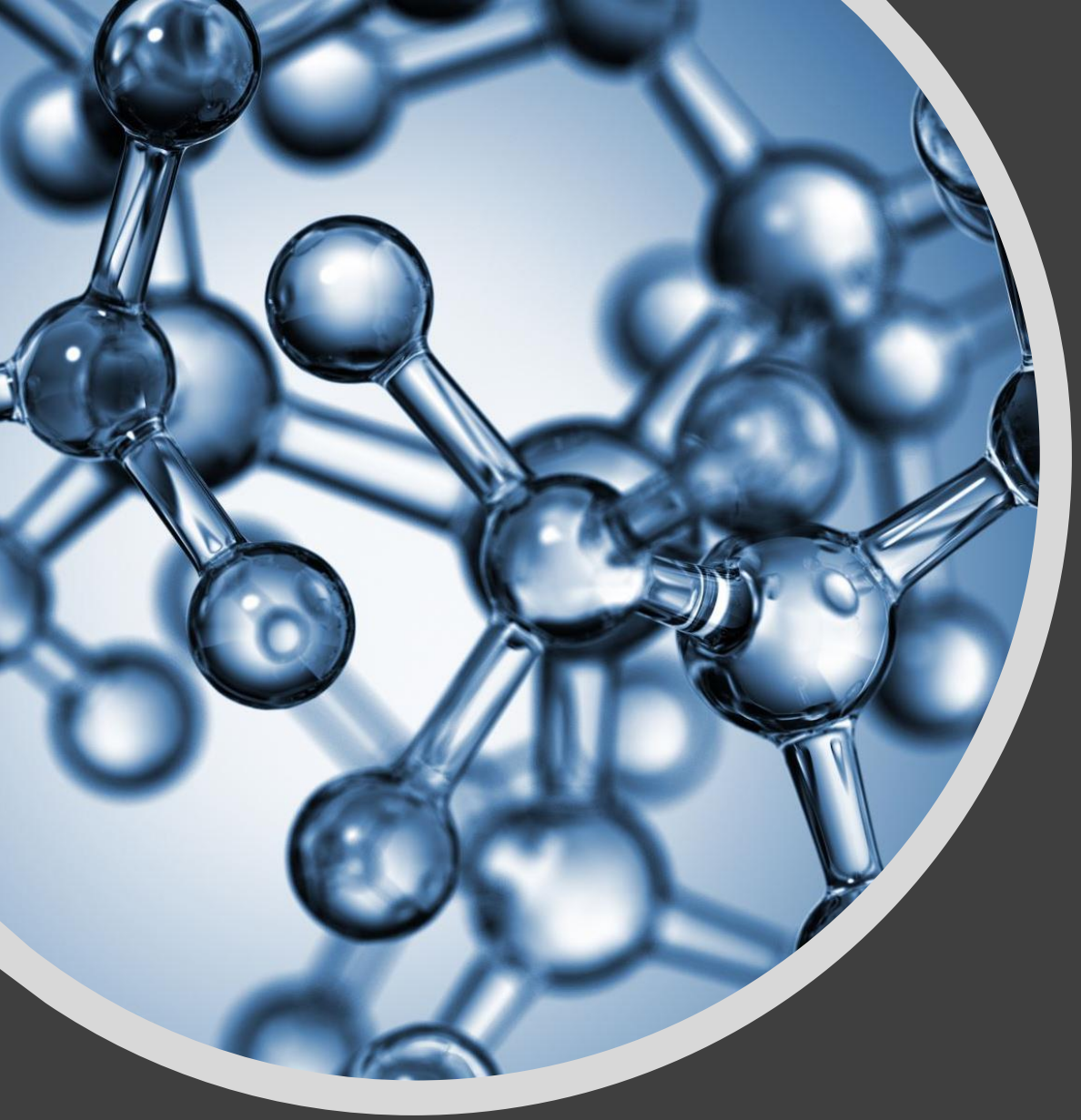
Nutrition

Emotion

Regulation

(SANER)

Kelly JF (2021; 2022)



Challenges of Initial and Early Recovery

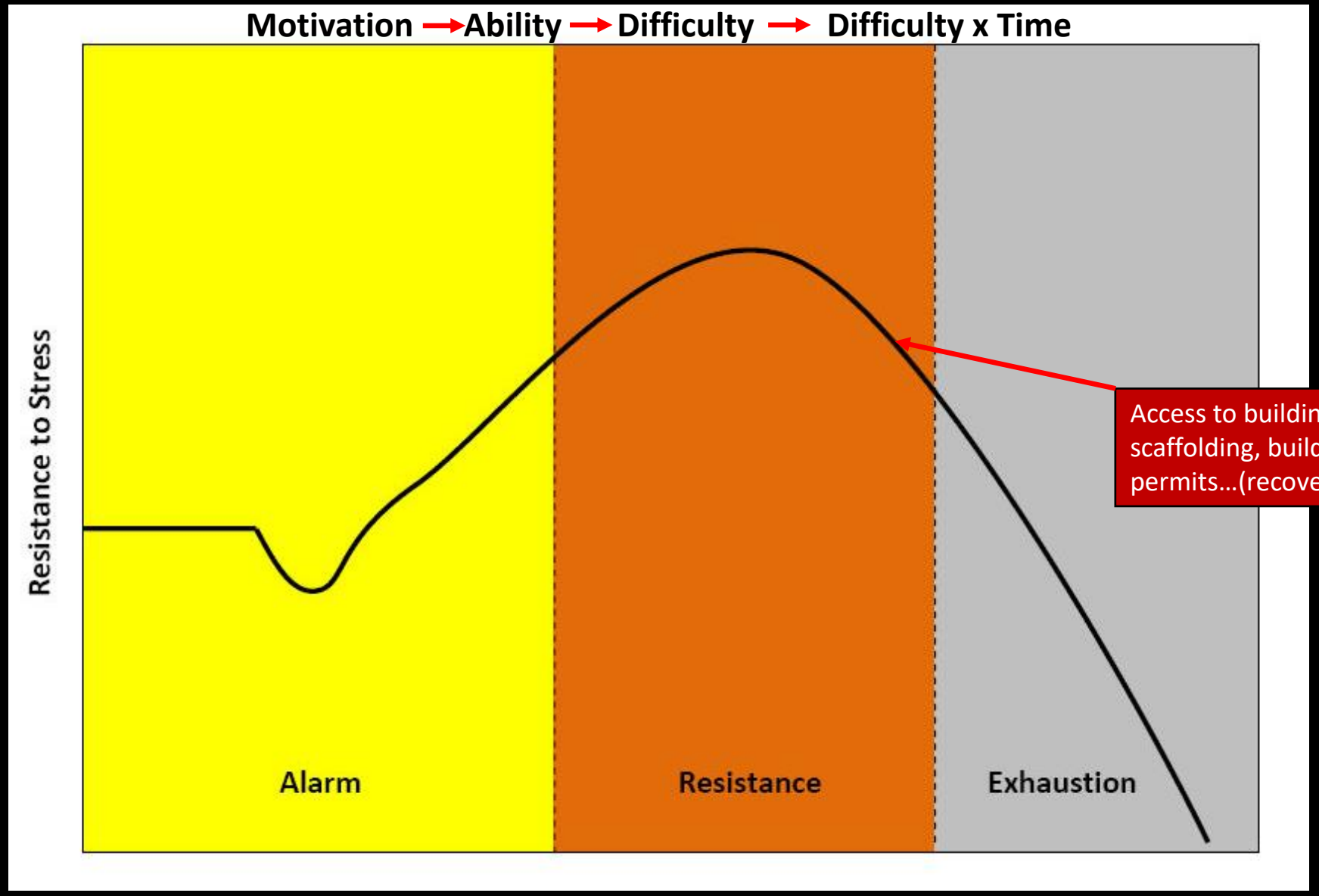
Increased sensitivity to stress

Decreased capacity to experience normal levels of reward

Post-Acute Withdrawal Phenomena

- Sensitivity to stress
- Memory problems
- Sleep difficulties
- Emotional overreactions/numbness
- Cognitive challenges
- Physical coordination challenges

Allostasis (maintaining an organism's stability [homeostasis] through change) occurs both during the development of addiction and of recovery…



Adapted from Selye, 1956; McEwen, 1998; 2009

Addiction Research & Theory

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informa healthcare

THINK PIECE

A biaxial formulation of the recovery construct

John Francis Kelly and Bettina Hoeppner

Department of Psychiatry, MGH Center for Addiction Medicine and Harvard Medical School, Boston, MA, USA

Abstract

The term "recovery" in the substance use disorder (SUD) field has been used generally and non-technically to describe global improvements in health and functioning typically following successful abstinence. More recently, however, in an attempt to reduce the stigma and negative public and clinical perceptions regarding remission potential for individuals suffering from SUD, "recovery" has been used more strategically to instil hope and to serve as an organizing paradigm that has inspired a growing recovery movement. In addition, with "recovery" gaining momentum internationally within governments' national health care agencies, there is increasing pressure to operationalise this construct as without it, it is difficult to develop, commission, and deliver the tailored packages of recovery support services needed to help individuals suffering from SUD. Initial attempts to define recovery and delineate its constituent parts have agreed on major elements, but differ on important subtleties; generally

Keywords

Addiction, policy, recovery, remission, terminology, substance use disorder

History

Received 2 January 2014
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Published online 23 June 2014

Like the original (bi-axial) formulation of the "dependence syndrome" itself, "recovery" also might be conceptualized as bi-axial…

Commission, 2008; White, 2007)

With ''recovery'' gaining momentum as an organizing paradigm in many countries (El-Guebaly, 2012; Substance Abuse and Mental Health Services Administration, 2011; UK Drug Policy Commission, 2008; White, 2007) a need to define this term and construct has become increasingly necessary. Without greater clarity, it is challenging to develop,

of addiction recovery by El-Guebaly (2012) concluded that ''a consensual theoretical framework of addiction recovery remains to be elaborated…''.

To this end, the goal of this article is to stimulate further thought and debate by offering a theoretical basis for, and description of, the recovery construct that we hope enhances clarity and measurability, and stimulates further discussion. To accomplish this goal, we review current definitions of the recovery construct and offer a simplified bi-axial formulation and definition grounded in stress and coping theory (Folkman, 1984), which mirrors, conceptually, original formulations of the addiction syndrome (Edwards, 1986; Edwards & Gross, 1976).

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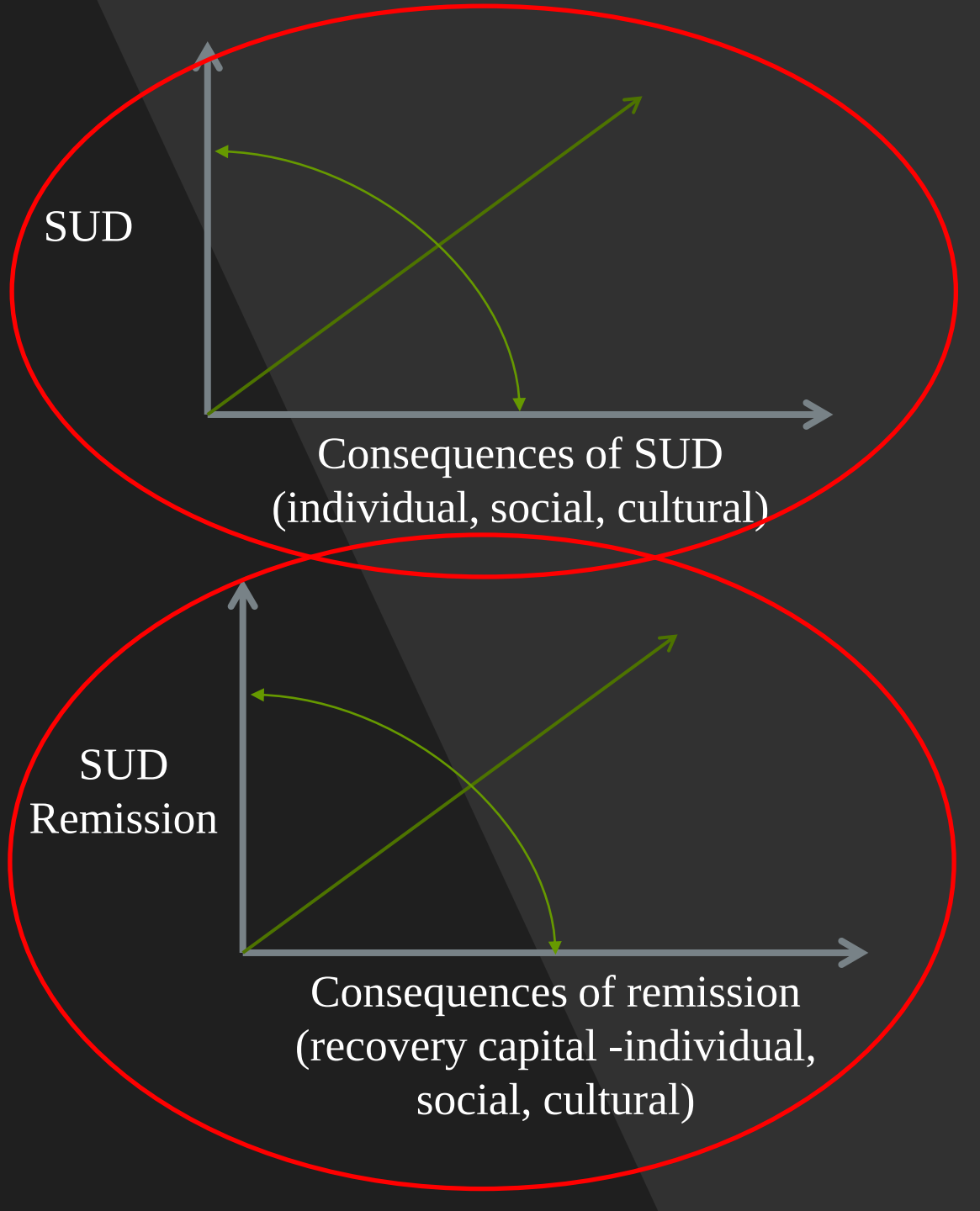
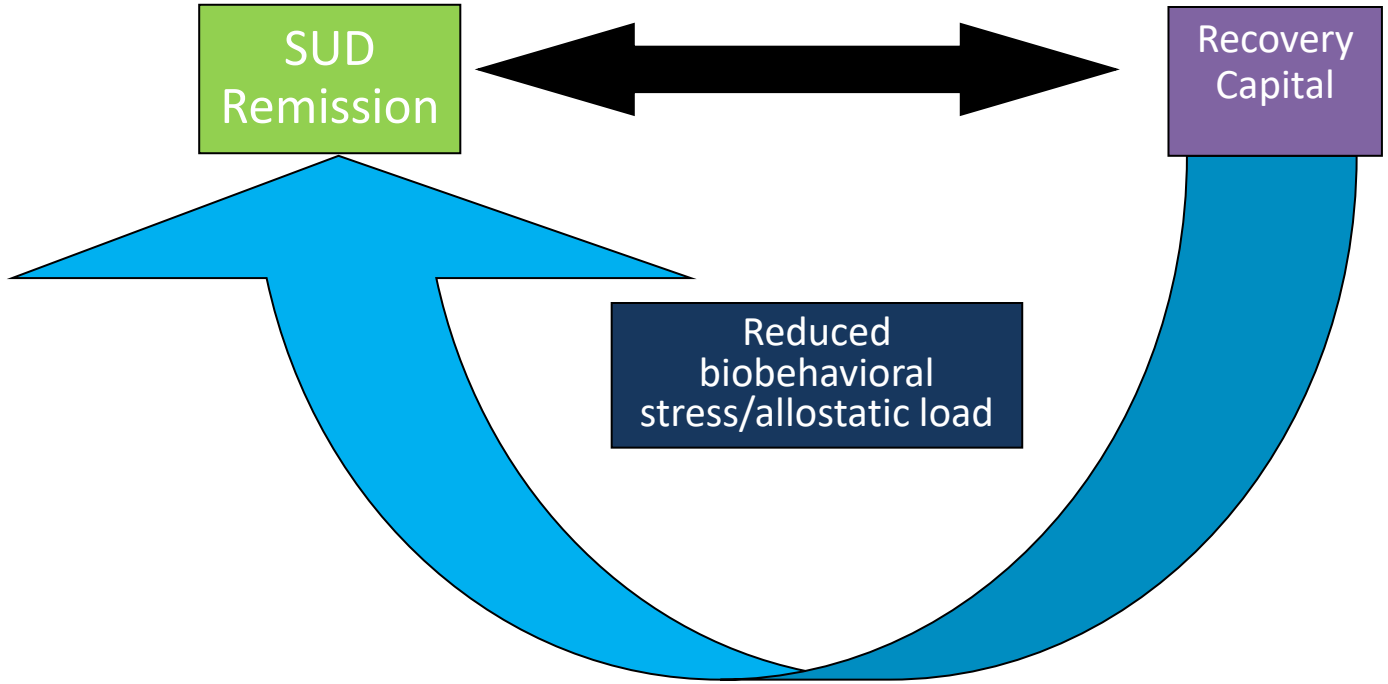


Recovery: Dynamic Reciprocal relationship between remission and recovery capital where increases in individual and social capital reduces bio-behavioral stress/allostatic load and enhances chances of ongoing remission

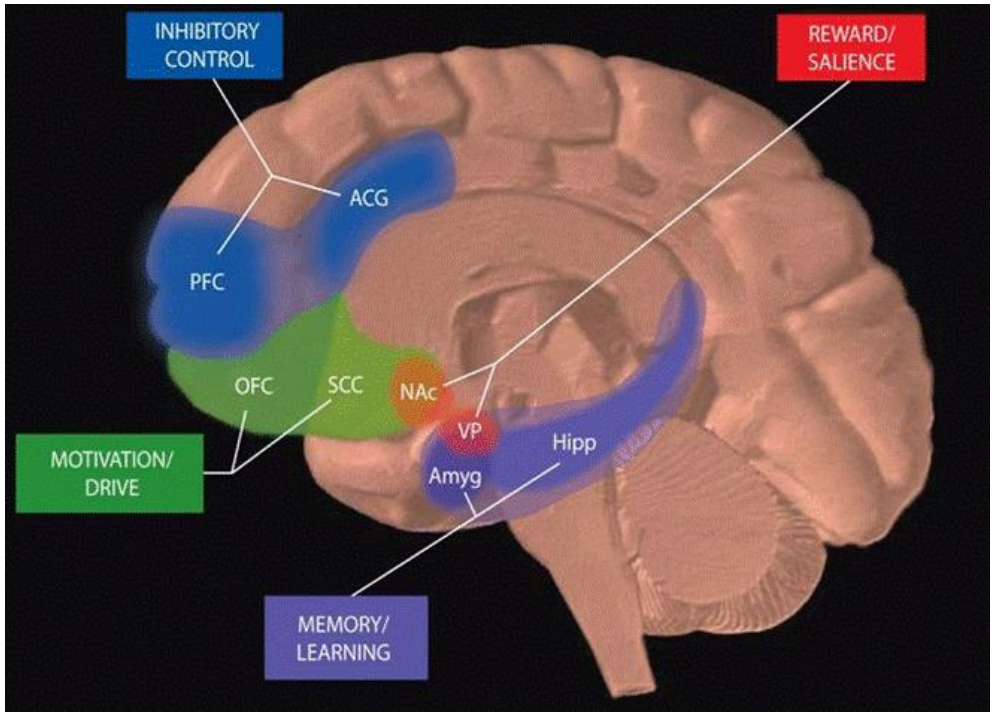


Longer remission results in greater accrual of recovery capital; in turn, greater recovery capital increases the chances of longer remission because it reduces biobehavioral stress – a major pathway to relapse. Thus, providing more recovery support will increase the chances of remission by reducing stress.

Adapted from Kelly and Hoeppner (2014)

Neuroscience of Recovery Capital

Can social factors, recovery housing, and employment, change the brain, mitigate stress, upregulate down-regulated receptor systems, and increase the chances of long-term remission?



Social Buffering

- Stress-buffering effects of social relationships- one of the major findings of past century
- Mechanisms of this poorly understood

Psychological Bulletin

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0033-2909/13/$12.00 DOI: 10.1037/a0032671

Psychobiological Mechanisms Underlying the Social Buffering of the Hypothalamic–Pituitary–Adrenocortical Axis: A Review of Animal Models and Human Studies Across Development

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University of Minnesota

Regina M. Sullivan
New York University Langone Medical Center

Megan R. Gunnar
University of Minnesota

Discovering the stress-buffering effects of social relationships has been one of the major findings in psychobiology in the last century. However, an understanding of the underlying neurobiological and psychological mechanisms of this buffering is only beginning to emerge. An important avenue of this research concerns the neurocircuitry that can regulate the activity of the hypothalamic–pituitary–adrenocortical (HPA) axis. The present review is a translational effort aimed at integrating animal models and human studies of the social regulation of the HPA axis from infancy to adulthood, specifically focusing on the process that has been named *social buffering*. This process has been noted across species and consists of a dampened HPA axis stress response to threat or challenge that occurs with the presence or assistance of a conspecific. We describe aspects of the relevant underlying neurobiology when enough information exists and expose major gaps in our understanding across all domains of the literatures we aimed to integrate. We provide a working conceptual model focused on the role of oxytocinergic systems and prefrontal neural networks as 2 of the putative biological mediators of this process, and propose that the role of early experiences is critical in shaping later social buffering effects. This synthesis points to both general future directions and specific experiments that need to be conducted to build a more comprehensive model of the HPA social buffering effect across the life span that incorporates multiple levels of analysis: neuroendocrine, behavioral, and social.

Keywords: stress, social support, early caregiving, oxytocin, prefrontal cortex

It is an empirical reality that some individuals succumb, whereas others thrive, when confronted with similar stressors. Having access to social support may be an important modulator of these widespread individual differences in responses to potentially stressful events. Indeed, some exciting experiments in humans (e.g., Heinrichs, Baumgartner, Kirschbaum, & Ehlert, 2003; Kirschbaum, Klauer, Filipp, & Hellhammer, 1995; Taylor et al., 2008) and animals (e.g., Hennessy, 1984, 1986; Vogt, Coe, & Levine, 1981) have identified a dampening of the hypothalamic–pituitary–adrenocortical (HPA) axis response to stressors by social factors as one of the possible mechanisms underlying the benefits of social support. Longitudinal studies also reveal relations between social support and basal levels of stress hormones such as salivary cortisol (Rosal, King, Ma, & Reed, 2004). Understanding the social buffering processes affecting this neuroendocrine axis would allow the possibility of interventions that might have cascading positive effects across multiple biological and psychological systems. Despite the important implications of this knowledge, our understanding of the underlying neurobiology and relevant components of social interaction that permit these HPA activity-regulating effects remains vastly incomplete.

General Framework

RESPONDING TO STRESS: SOCIAL BUFFERING

…and researchers have started to examine possible neurobiological connections between social support and individual stress responses

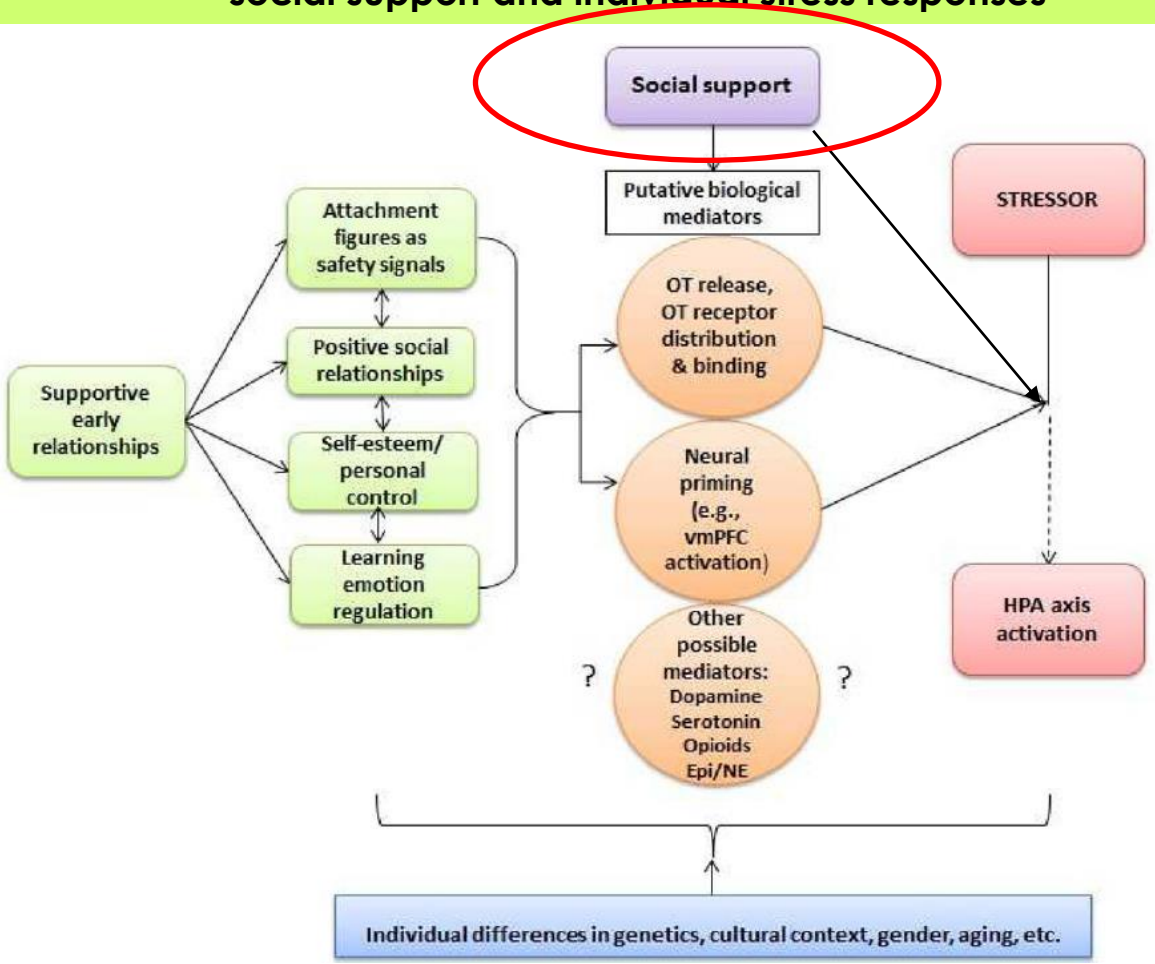

Figure 1. A Developmental Working Model of Social Buffering of the HPA Axis in Humans

OT = oxytocin, vmPFC = ventro-medial prefrontal cortex, Epi = epinephrine, NE = norepinephrine

Hostinar, C. E., Sullivan, R. M., & Gunnar, M. R. (2014). Psychobiological Mechanisms Underlying the Social Buffering of the HPA Axis: A Review of Animal Models and Human Studies across Development. Psychological Bulletin, 140(1).

D2/D3 RECEPTOR BINDING & SOCIAL STATUS AND SUPPORT

AIM

Assess whether $D_{2/3}$ receptor levels correlate with social status and social support (particularly, to determine if low social status and low social support correlate with low $D_{2/3}$ receptor binding)

SAMPLE

N = 14 healthy participants (i.e., non-smoking with no Axis I disorders, significant medical conditions, or use of medications before the scan) who were scanned using positron emission tomography (PET) imaging to measure $D_{2/3}$ receptor binding potential (BP)

MEASURES

- Barratt Simplified Measure of Social Status (BMSSS) to measure social status
- Scale of Perceived Social Support (MSPSS) to measure social support
- [^{11}C]raclopride to measure $D_{2/3}$ receptor binding in the striatum

OUTCOMES

- Positive correlation between **$D_{2/3}$ receptor** binding potential and **social status**
- Positive correlation between **$D_{2/3}$ receptor** binding potential and **perceived social support**
- Results similar to prior studies of nonhuman primates, which show higher $D_{2/3}$ receptor levels in monkeys who are dominant in their social hierarchy, compared to those who are subordinate

BRIEF REPORTS

Dopamine Type 2/3 Receptor Availability in the Striatum and Social Status in Human Volunteers

Diana Martinez, Daria Orlowska, Rajesh Narendran, Mark Slifstein, Fei Liu, Dileep Kumar, Allegra Broft, Ronald Van Heertum, and Herbert D. Kleber

Background: Previous positron emission tomography (PET) imaging studies in nonhuman primates have shown that striatal dopamine type 2/3 ($D_{2/3}$) receptors correlate with social hierarchy in monkeys and that dominant animals exhibit higher levels of $D_{2/3}$ receptor binding. The goal of the present study was to examine this phenomena in human subjects using PET and the radiotracer [^{11}C]raclopride.

Methods: Fourteen healthy volunteers were scanned with [^{11}C]raclopride to measure $D_{2/3}$ receptor binding potential (BP). Social status was assessed using the Barratt Simplified Measure of Social Status. In addition, participants were asked to assess their level of social support using the Multidimensional Scale of Perceived Social Support (MSPSS).

Results: A correlation was seen between social status and dopamine $D_{2/3}$ receptors, where volunteers with the higher status had higher values for [^{11}C]raclopride BP. A similar correlation was seen with the perceived social support, where higher [^{11}C]raclopride BP correlated with higher scores on the MSPSS.

Conclusions: The results of this study support the hypothesis that social status and social support is correlated with $D_{2/3}$ receptor binding.

Key Words: [^{11}C]raclopride, dopamine 2/3 receptor, PET imaging, social status

Previous studies in animals have shown a correlation between dopamine transmission in the brain and social hierarchy (1). In monkeys, dominant and subordinate social rank are determined by physical and social triumph and defeat. Dominant animals win more physical confrontations and receive more social attention, such as grooming or huddling. Two positron emission tomography (PET) imaging studies have investigated the relationship between social status and $D_{2/3}$ receptors in the striatum in monkeys. Both showed that social dominance was associated with higher $D_{2/3}$ receptor binding compared with subordinate animals (2,3).

In humans, social hierarchy is a more subtle phenomenon that can be approximated by measuring social status and social support (4). Thus, the goal of the present study was to examine the correlation between these factors and dopamine $D_{2/3}$ receptor binding in human subjects. Given the known effect of disease states on striatal $D_{2/3}$ receptors, including substance dependence, schizophrenia, and anxiety disorders (5–7), only healthy control volunteers were included in this study. Social status was measured using the Barratt Simplified Measure of Social Status (BMSSS) (8) and social support was measured using the Multidimensional Scale of Perceived Social Support (MSPSS) (9). Our hypothesis was that low social status and low levels of social support would correlate with low $D_{2/3}$ receptor binding in the striatum measured with [^{11}C]raclopride.

From the Departments of Psychiatry (DM, DO, MS, FL, DK, AB, HDK) and Radiology (RVH), Columbia University, College of Physicians and Surgeons, New York, New York; and Department of Radiology (RN), University of Pittsburgh, Pittsburgh, Pennsylvania.
Address correspondence to Diana Martinez, M.D., New York State Psychiatric Institute, 1051 Riverside Drive, Box #31, New York, NY 10032; E-mail: dm437@columbia.edu.
Received Dec 18, 2008; revised Jul 23, 2009; accepted Jul 28, 2009.

Methods and Materials

The study was approved by the Institutional Review Board of the New York State Psychiatric Institute and all subjects provided written informed consent. Study participants were nonsmoking healthy control subjects and were required to have no DSM-IV Axis I disorder (including substance abuse or dependence), no significant medical conditions, and no use of medications before the scan (6 months for medications that could affect dopamine, 2 weeks for all others). Subjects (nine men and five women) were recruited from the New York City metropolitan area. Participant screening included a psychiatric assessment with the *Structured Clinical Interview for DSM-IV Axis I Disorders* (10), physical examination, electrocardiogram, and laboratory tests. All subjects were asked for data to complete the Barratt Simplified Measure of Social Status and to complete the Multidimensional Scale of Perceived Social Support. The scans performed on female subjects were not controlled for menstrual cycle phase.

[^{11}C]raclopride was prepared as previously described (11), and PET studies were acquired using a bolus injection of the radiotracer. The PET scans were obtained on the ECAT EXACT HR+ (Siemens/CTI, Knoxville, Tennessee) in three-dimensional (3-D) mode. Emission data were obtained as 15 frames of increasing duration up to 60 minutes. The PET images were reconstructed by filtered backprojection (Shepp .5 filter) with attenuation correction using the data from a 10-minute transmission scan.

All image analysis was performed in MEDx (Sensor Systems, Inc, Sterling, Virginia). Each subject underwent a transaxial T1 magnetic resonance imaging (MRI) scan, acquired on the GE Signa EXCITE 3 T/94 cm scanner (GE Medical Systems, Milwaukee, Wisconsin), for delineation of the regions of interest (ROIs). The regions of interest outlined on the MRI included the subdivisions of the striatum, which have been previously described (12). Briefly, these included the ventral striatum (VST), the dorsal caudate rostral to the anterior commissure (AC) (precommissural dorsal caudate [preDCAU], the dorsal putamen rostral to the AC (precommissural dorsal putamen [preDPUT], the caudate caudal to the AC (postcommissural caudate [postCAUT], and the putamen caudal to the AC (postcommissural putamen [postPUT]).

Martinez, D., Orlowska, D., Narendran, R., Slifstein, M., Liu, F., Kumar, D., . . . Kleber, H. D. (2010). Dopamine type 2/3 receptor availability in the striatum and social status in human volunteers. *Biological Psychiatry, 67*(3), 275-278. doi:10.1016/j.biopsych.2009.07.037

D2/D3 RECEPTOR BINDING & SOCIAL STATUS AND SUPPORT

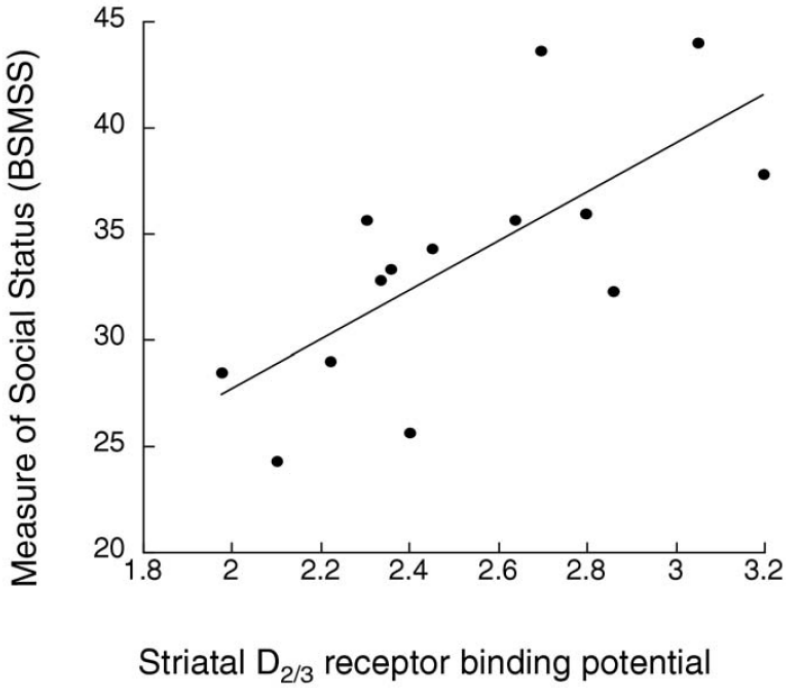

Figure 1. Correlation between [^{11}C]raclopride BP (x axis) and social status, measured with the Barratt Simplified Measure of Social Status (BSMSS). A positive correlation was seen, where higher BP correlated with higher BSMSS ($r = .71$, $p = .004$, age-corrected $p = .007$). BP, binding potential.

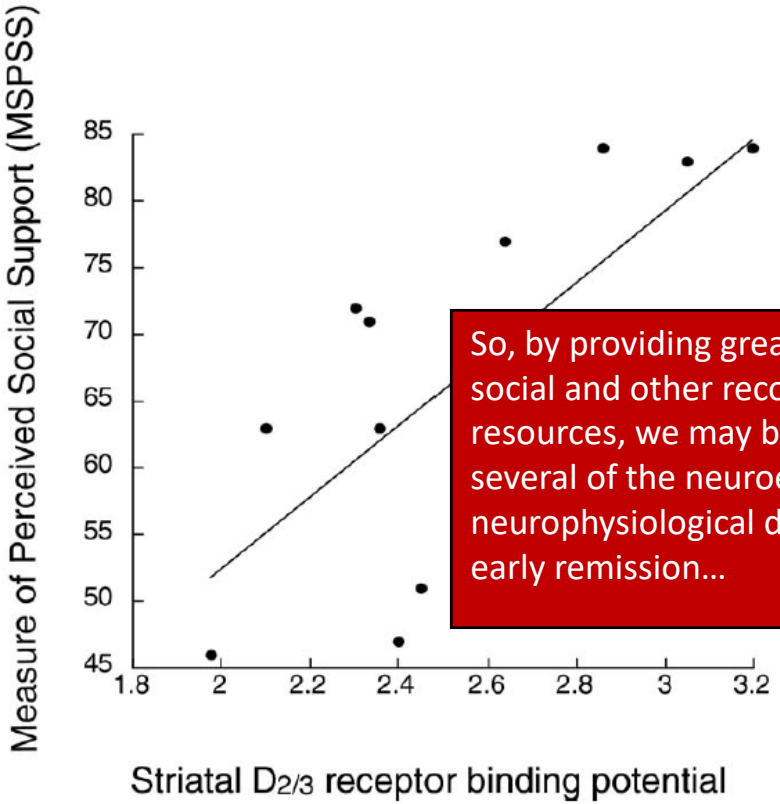

Figure 2. Correlation between [^{11}C]raclopride BP (x axis) and score on the Multidimensional Scale of Perceived Social Support (MSPSS). A positive correlation was seen, where higher BP correlated with higher score on the MSPSS ($r = .73$, $p = .005$, age-corrected $p = .02$). BP, binding potential.

So, by providing greater access to social and other recovery specific resources, we may be able to mitigate several of the neuroendocrine/ neurophysiological deficits present in early remission…

$D_{2/3}$ receptor binding increases as **social status** increases.

$D_{2/3}$ receptor binding increases as **social support** increases.

Martinez, D., Orlowska, D., Narendran, R., Slifstein, M., Liu, F., Kumar, D., . . . Kleber, H. D. (2010). Dopamine type 2/3 receptor availability in the striatum and social status in human volunteers. *Biological Psychiatry, 67*(3), 275-278. doi:10.1016/j.biopsych.2009.07.037

Outline

Rationale - How did we get here? A rationale for the new public health and scientific focus on sustained remission and recovery

Recovery Support Services and Recovery Capital – facilitating supportive environments and recovery capital

Recovery Process – Recovery milestones and their utility. Who needs what, when, for how long, at what intensity?

Insights - Some novel findings from research

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Cochrane Database of Systematic Reviews

Alcoholics Anonymous and other 12-step programs for alcohol use disorder (Review)

Kelly JF, Humphreys K, Ferri M

Kelly JF, Humphreys K, Ferri M.
Alcoholics Anonymous and other 12-step programs for alcohol use disorder.
Cochrane Database of Systematic Reviews 2020, Issue 3. Art. No.: CD012880.
DOI: 10.1002/14651858.CD012880.pub2.

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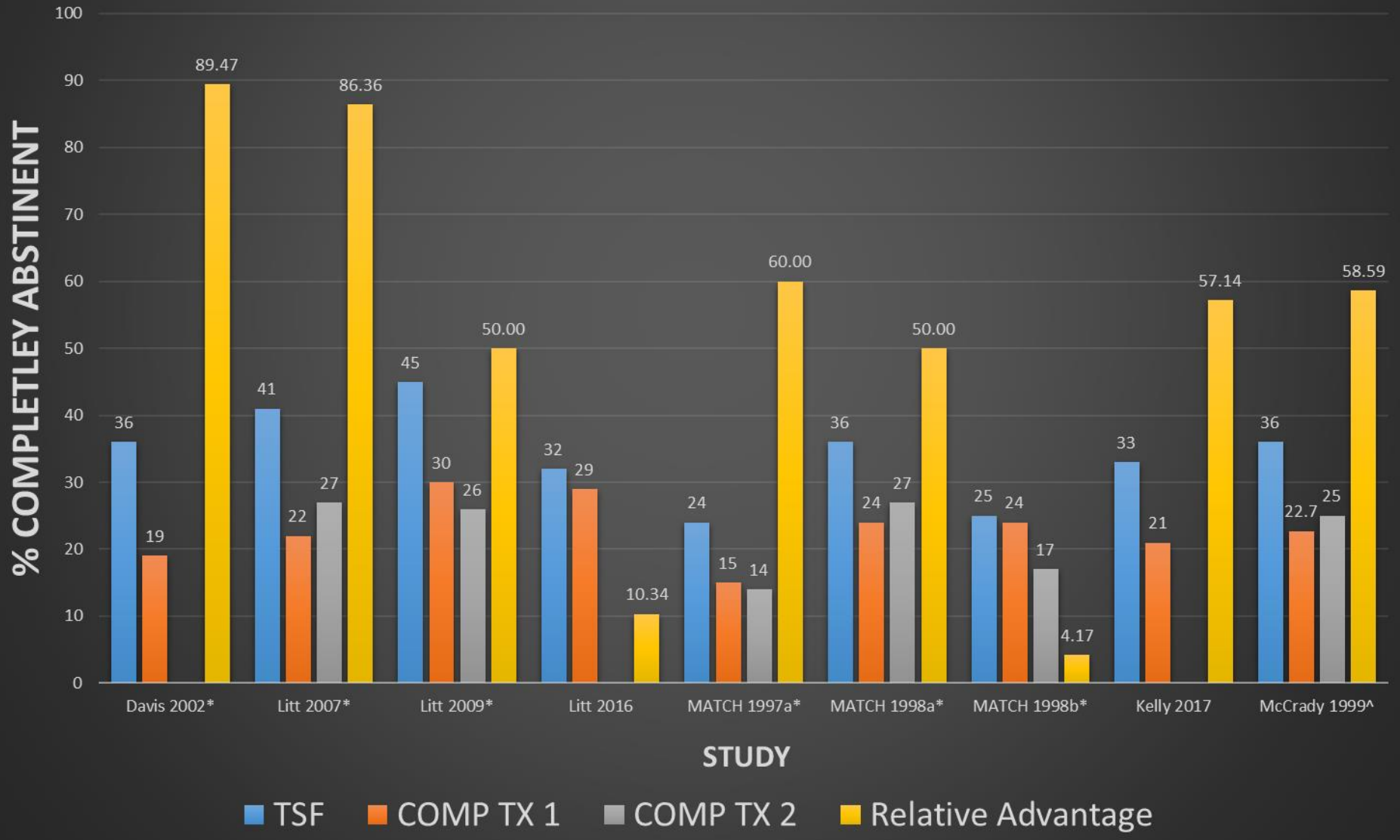
Cochrane Systematic Review on AA/TSF (2020)

- Kelly, JF
- Humphreys, K
- Ferri, M

TSF Compared to Different Theoretical Orientation Treatments (RCTs all Manualized)



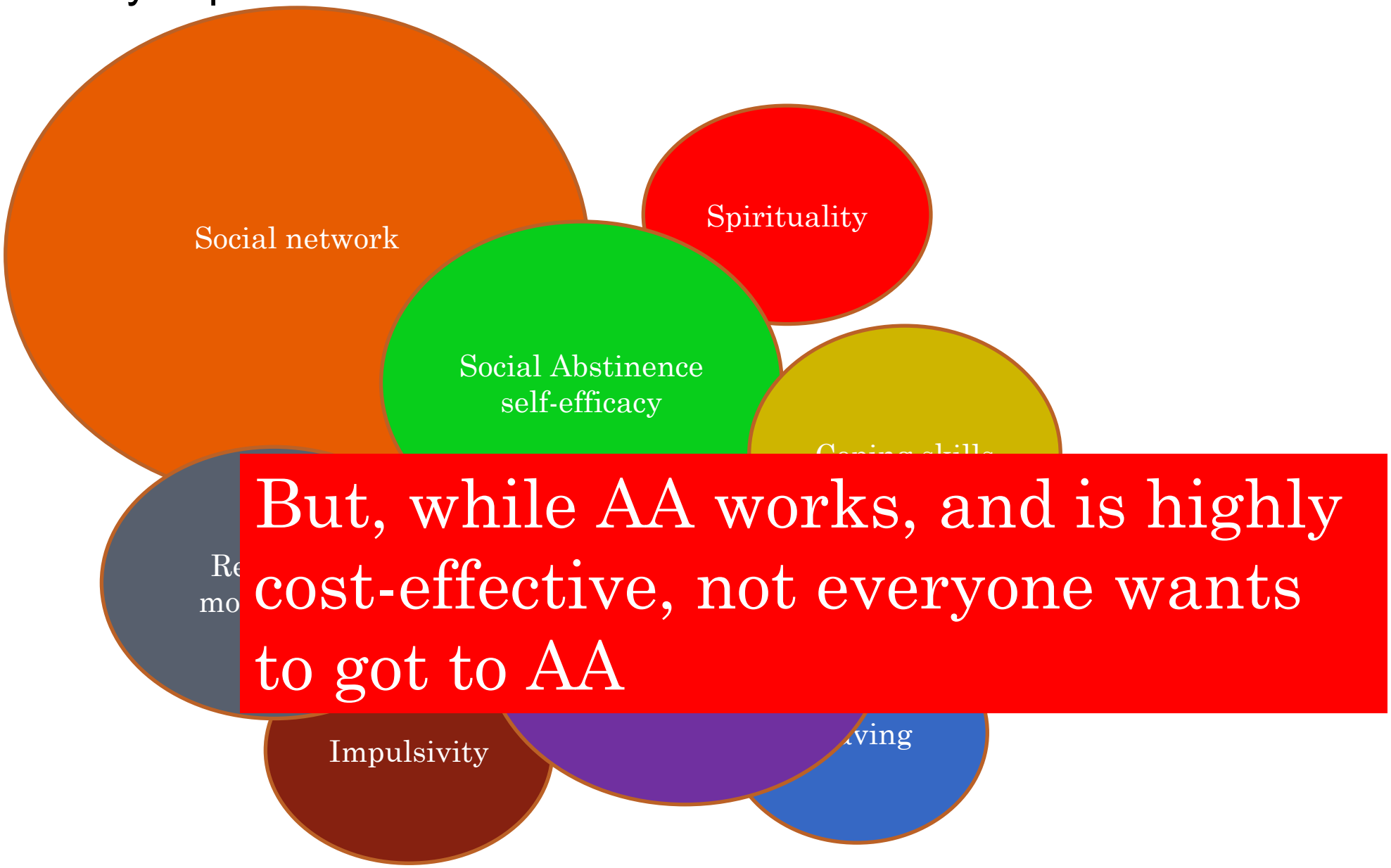
Economic Studies

Healthcare Cost Savings

- 3/4 included studies in this category (n reports = 4/5; found sig. health care cost saving in favor of the AA/TSF condition.
- Economic analyses found benefits in favor of AA/TSF relative to outpatient treatment, and CBT interventions.
- Magnitude - large. In addition to sig. increased abstinence/remission, compared to CBT interventions

$10-15 Billion/yr savings in health care alone

Empirically-supported MOBCs through which AA confers benefit: AA mobilizes social and personal recovery capital…



But, while AA works, and is highly cost-effective, not everyone wants to got to AA

Adapted from: Kelly, 2017; Kelly, Magill, Stout, 2009

Expanding the array of Recovery Support Options

- Do **fitness centers** work to keep people physical fit?

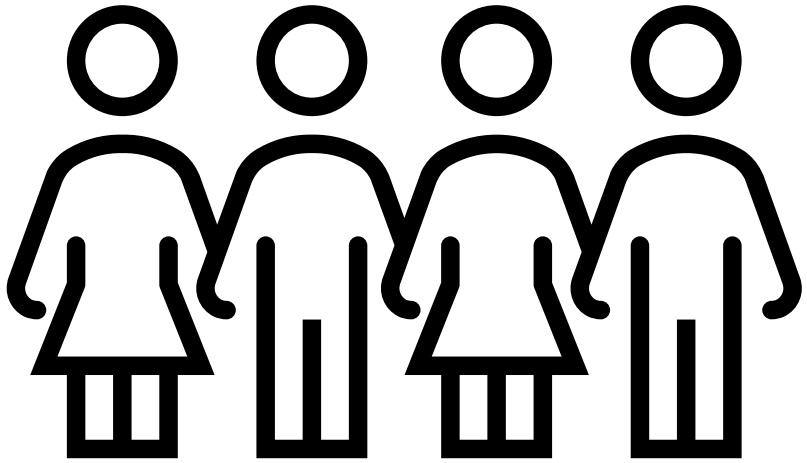
- Of course! - if you go and work out often
- Challenge is engaging and retaining people in some kind of ongoing regimen…
- Fitness centers therefore provide not just one, but an array, of different classes, spaces, equipment, pools, and courts, so that people can find something appealing

Expanding the array of Recovery Support Options

- Do **mutual-Help organizations (MHOs)** work to keep people fit for recovery?

- Of course! -if you go regularly - work recovery program - build it in to lifestyle (like exercise)
- Challenge is engaging and retaining people in some kind of ongoing recovery service …
- Recovery support services however, have been largely limited to one variety (e.g.,12-step) limiting options to engage and retain people in ongoing recovery service that can help sustain remission.
- Tantamount to a fitness center having ONLY a weight room, or ONLY a pool etc…

Emerging Evidence for Additional Mutual-Help Organizations….



J Subst Abuse Treat. 2017 February ; 73: 16–26. doi:10.1016/j.jsat.2016.10.004.

Comparison of 12-step Groups to Mutual Help Alternatives for AUD in a Large, National Study: Differences in Membership Characteristics and Group Participation, Cohesion, and Satisfaction

Sarah E. Zemore, Ph.D., **Lee Ann Kaskutas, Dr.P.H.**, **Amy Mericle, Ph.D.**, and **Jordana Hemberg, MPH**
Alcohol Research Group, Emeryville, CA

Abstract

Background—Many studies suggest that participation in 12-step groups contributes to better recovery outcomes, but people often object to such groups and most do not sustain regular involvement. Yet, research on alternatives to 12-step groups is very sparse. The present study aimed to extend the knowledge base on mutual help group alternatives for those with an alcohol use disorder (AUD), sampling from large, active, abstinence-focused groups including Women for Sobriety (WFS), LifeRing, and SMART Recovery (SMART). This paper presents a cross-sectional

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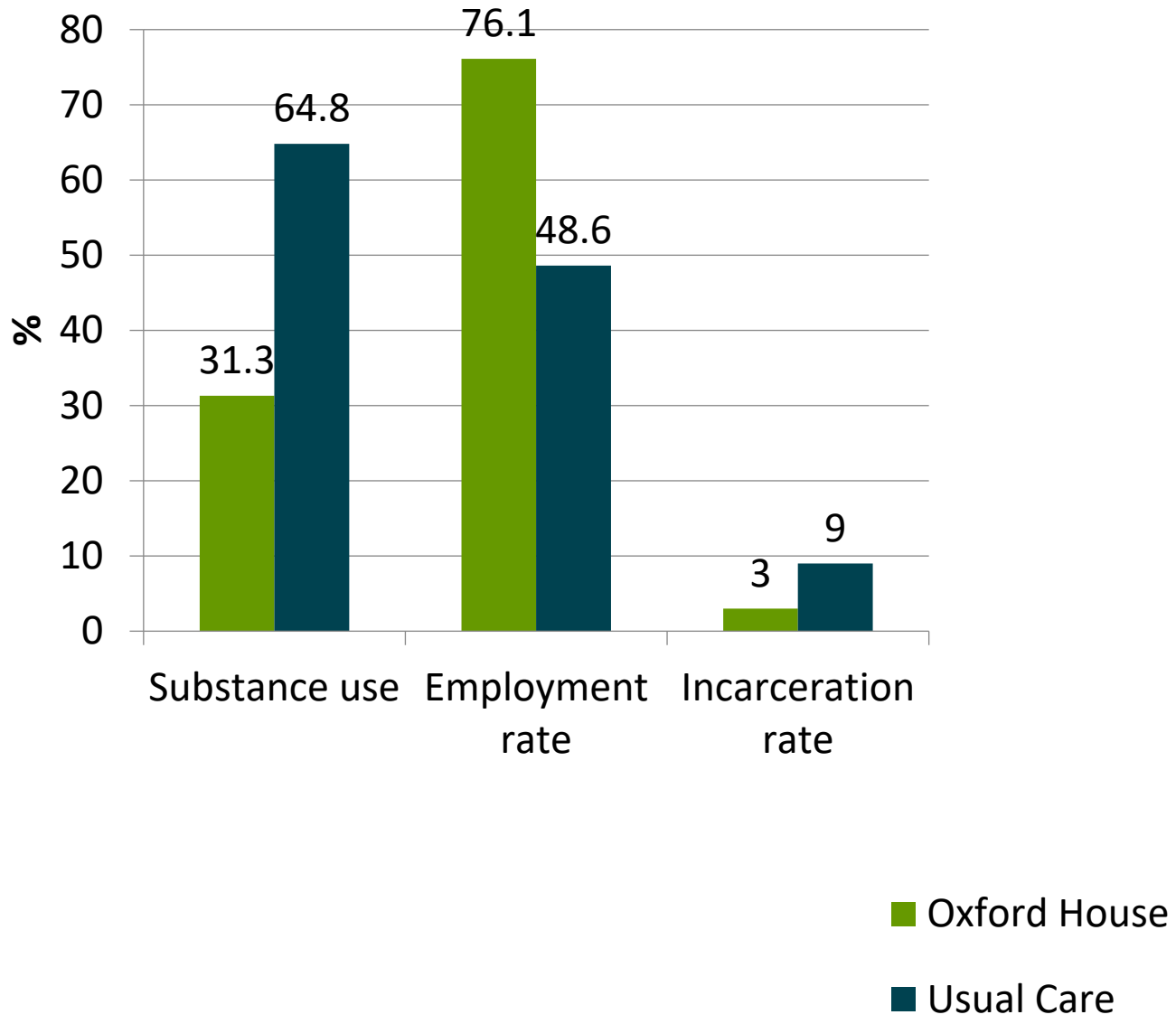
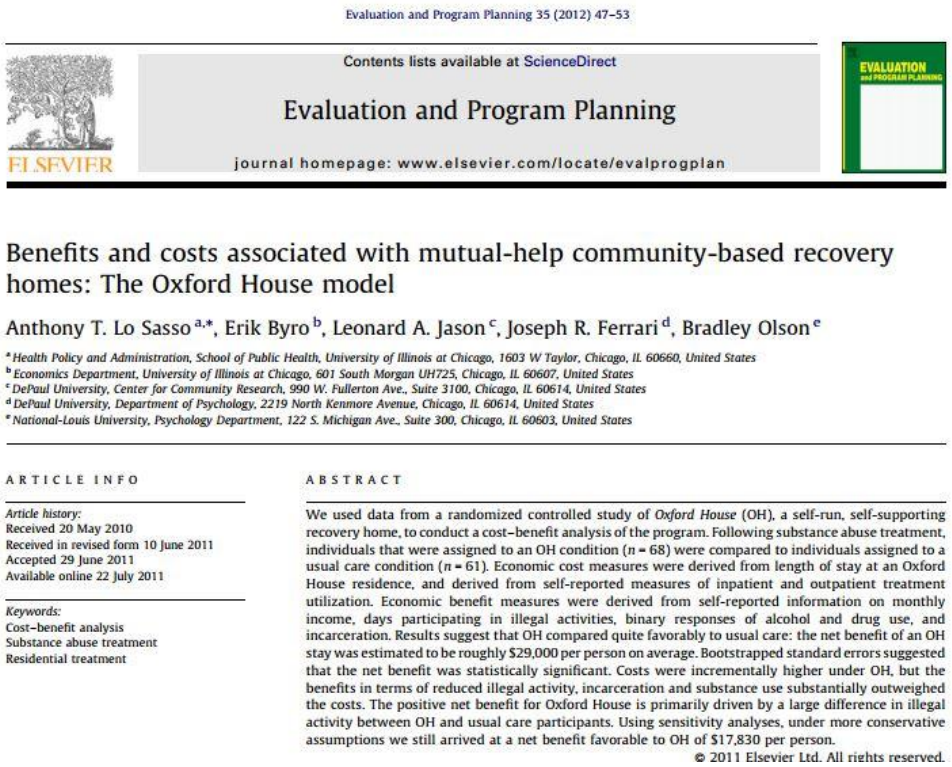
Oxford House vs. Usual Care

Recovery Residences had –

- half as many using substances across 2 yrs
- 50% more employed
- 1/3 re-incarceration rate



Cost-benefit analysis of the Oxford House Model



Evaluation and Program Planning 35 (2012) 47–53

Contents lists available at ScienceDirect

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journal homepage: www.elsevier.com/locate/evalprogplan

Benefits and costs associated with mutual-help community-based recovery homes: The Oxford House model

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[b] Economics Department, University of Illinois at Chicago, 601 South Morgan UH725, Chicago, IL 60607, United States
[c] DePaul University, Center for Community Research, 990 W. Fullerton Ave., Suite 3100, Chicago, IL 60614, United States
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Substance abuse treatment
Residential treatment

ABSTRACT

We used data from a randomized controlled study of *Oxford House* (OH), a self-run, self-supporting recovery home, to conduct a cost–benefit analysis of the program. Following substance abuse treatment, individuals that were assigned to an OH condition ($n = 68$) were compared to individuals assigned to a usual care condition ($n = 61$). Economic cost measures were derived from length of stay at an Oxford House residence, and derived from self-reported measures of inpatient and outpatient treatment utilization. Economic benefit measures were derived from self-reported information on monthly income, days participating in illegal activities, binary responses of alcohol and drug use, and incarceration. Results suggest that OH compared quite favorably to usual care: the net benefit of an OH stay was estimated to be roughly $29,000 per person on average. Bootstrapped standard errors suggested that the net benefit was statistically significant. Costs were incrementally higher under OH, but the benefits in terms of reduced illegal activity, incarceration and substance use substantially outweighed the costs. The positive net benefit for Oxford House is primarily driven by a large difference in illegal activity between OH and usual care participants. Using sensitivity analyses, under more conservative assumptions we still arrived at a net benefit favorable to OH of $17,830 per person.

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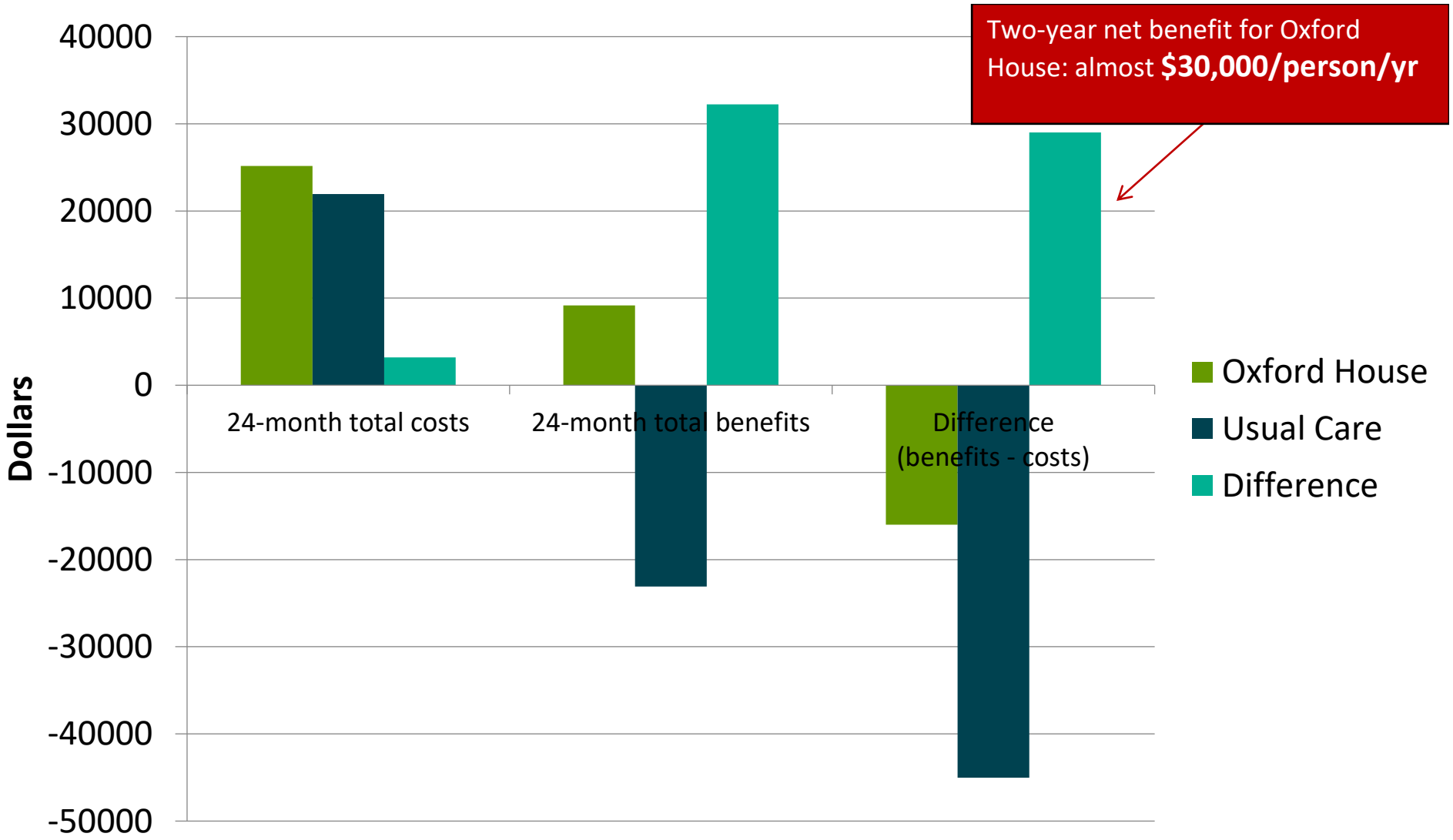
- **Sample**: 129 adults leaving substance use treatment between 2002 and 2005
- **Design**: Cost-benefit analysis using RCT data
- **Intervention**: Oxford House vs. usual continuing care
- **Follow-up**: 2 years
- **Outcome**: Substance use, monthly income, incarceration rates

Mean per-person societal benefits and costs



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One-Stop Shopping for Recovery: An Investigation of Participant Characteristics and Benefits Derived From U.S. Recovery Community Centers

John F. Kelly, Robert L. Stout, Leonard A. Jason, Nilofar Fallah-Sohy, Lauren A. Hoffman, and Bettina B. Hoeppner

Background: Recovery community centers (RCCs) are the "new kid on the block" in providing addiction recovery services, adding a third tier to the 2 existing tiers of formal treatment and mutual-help organizations (MHOs). RCCs are intended to be recovery hubs facilitating "one-stop shopping" in the accrual of recovery capital (e.g., recovery coaching; employment/educational linkages). Despite their growth, little is known about who uses RCCs, what they use, and how use relates to improvements in functioning and quality of life. Greater knowledge would inform the field about RCC's potential clinical and public health utility.

Methods: Online survey conducted with participants (N = 336) attending RCCs (k = 31) in the northeastern United States. Substance use history, services used, and derived benefits (e.g., quality of life) were assessed. Systematic regression modeling tested a priori theorized relationships among variables.

Results: RCC members (n = 336) were on average 41.1 ± 12.4 years of age, 50% female, predominantly White (78.6%), with high school or lower education (48.8%), and limited income (45.2% < $10,000 past-year household income). Most had either a primary opioid (32.7%) or alcohol (26.8%) problem. Just under half (48.5%) reported a lifetime psychiatric diagnosis. Participants had been attending RCCs for 2.6 ± 3.4 years, with many attending <1 year (35.4%). Most commonly used aspects were the socially oriented mutual-help/peer groups and volunteering, but technological assistance and employment assistance were also common. Conceptual model testing found RCCs associated with increased recovery capital, but not social support; both of these theorized proximal outcomes, however, were related to improvements in psychological distress, self-esteem, and quality of life.

Conclusions: RCCs are utilized by an array of individuals with few resources and primary opioid or alcohol histories. Whereas strong social supportive elements were common and highly rated, RCCs appear to play a more unique role not provided either by formal treatment or by MHOs in facilitating the acquisition of recovery capital and thereby enhancing functioning and quality of life.

Key Words: Recovery Community Centers, Recovery, Addiction, Support Services, Recovery Coaching, Addiction, Substance Use Disorder.

PROFESSIONAL TREATMENT SERVICES often play a vital role in addressing substance use disorders in the United States and around the world. Such clinical services can provide life-saving medically managed detoxification and stabilization as well as deliver medications and psychosocial interventions that can alleviate cravings and help prevent relapse. Extending the framework and benefits of these professional treatment efforts, peer-led mutual-help organizations (MHOs), such as Alcoholics Anonymous (AA), Narcotics Anonymous (NA), SMART Recovery, and many others are commonly used to provide additional long-term free recovery support over time in the communities in which people live (Bøg et al., 2017; Kelly, 2017; Kelly et al., 2017a). Adding to these resources in recent years has been a new dimension of recovery support services that are neither professional treatment nor MHOs. These new services (e.g., recovery community centers [RCCs], recovery residences, recovery coaching, recovery high schools, and collegiate recovery programs; Kelly et al., in press; White et al., 2012, 2012) combine voluntary, peer-led initiatives, with professional activities, and are intended to provide flexible community-based options to address the psychosocial barriers to sustained remission (White et al., 2012, 2012).

RCCs are one of the most common of these new additions to recovery support infrastructure and are growing rapidly (Cousins et al., 2012; Kelly et al., in press; Kelly et al., 2017b). RCCs are literally and metaphorically, "new kids on the block," as these novel entities are most often located on

From the Recovery Research Institute (JFK, NF-S, LAH, BBH), Massachusetts General Hospital and Harvard Medical School, Boston, Massachusetts; DePaul University (RLS), Chicago, Illinois; and Decision Sciences Institute (LAJ), Providence, Rhode Island.

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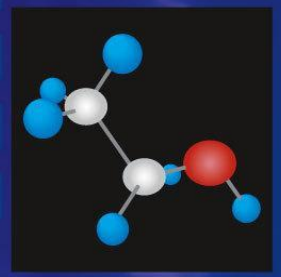

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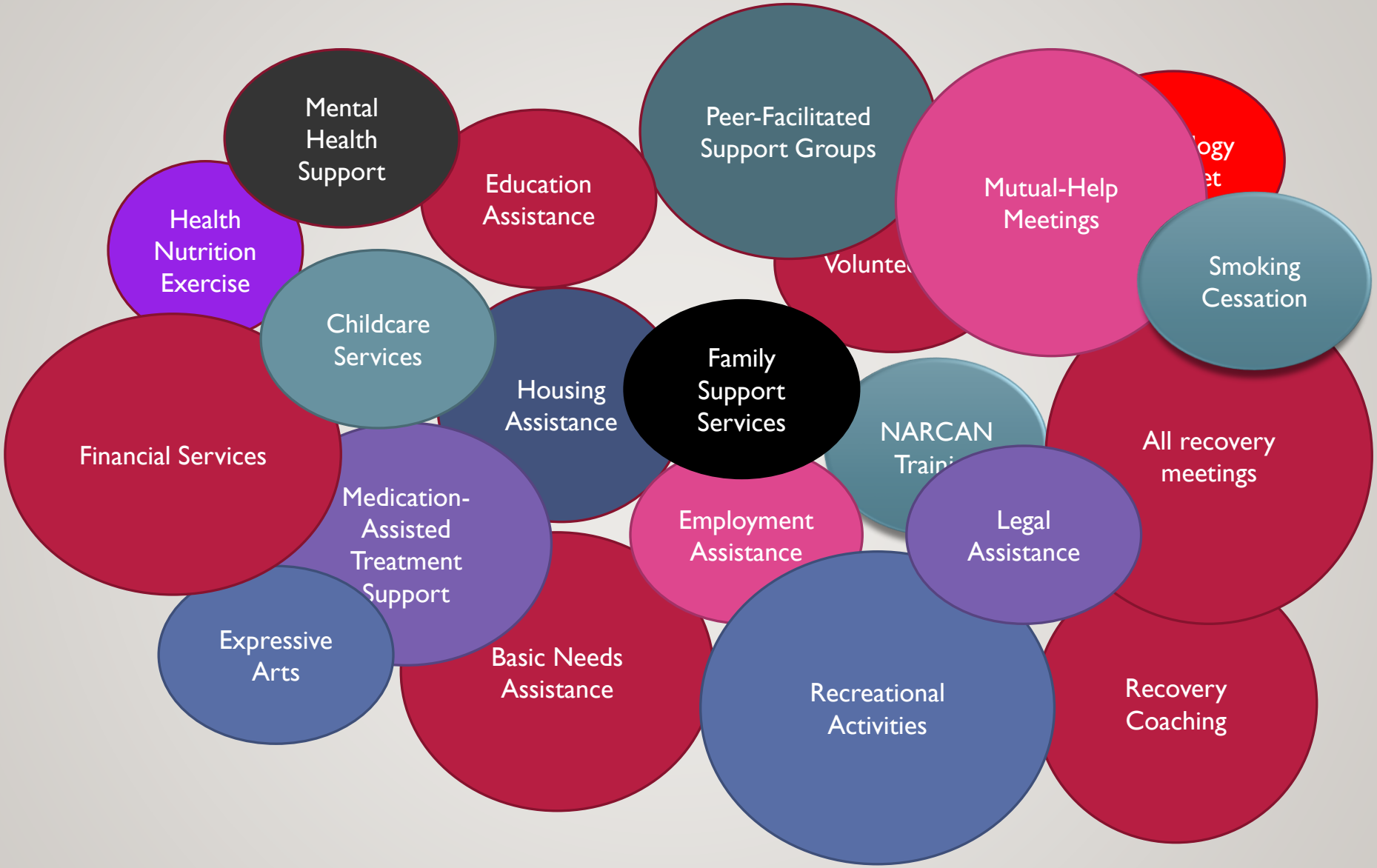

Cross-Sectional Survey (N=366) - RCC Experiences

	Total	
	Mean/%	(SD/*n*)
RCC experience		
Referral source		
Family and friends	44.0	(148)
SUD treatment (detox, inpatient, outpatient)	14.6	(49)
Housing and social services (e.g., sober living, shelter, including DSS)	13.7	(46)
RCC outreach (e.g., street outreach, Internet, pamphlets, community event, and ads)	11.6	(39)
Health care (PCP, ED)	5.4	(18)
Other (e.g., employer, 12-step, church, and academic)	8.9	(30)
Length of RCC attendance (in years)	2.6	(3.4)
Less than a year	35.4	(119)
1 to 5 years	49.1	(165)
5+ years	14.0	(47)
Percent days attended RCC in past 90 days (in mean, SD)	45.5	(32.1)
Length of typical RCC visit (in hours)	3.1	(2.7)
RCC appraisal		
RCC's helpfulness to recovery	6.2	(1.2)
RCC's helpfulness to QOL	6.1	(1.2)
RCC's sense of community (in mean, SD)		
Self (identity and importance to self)	5.3	(1.0)
Membership (social relationships)	5.2	(1.0)
Entity (a group's organization and purpose)	5.3	(1.0)
Recovery assets		
Recovery capital (BARC; 10 items, 1- to 6-point scale)	5.0	(0.9)
Social support for recovery (CEST-SS; 9 items, 1- to 6-point scale)	4.8	(1.0)
Quality of life (QOL) (in mean, SD)		
Quality of Life (EUROHIS-QOL; 8 items, 1- to 5-point scale)	3.8	(0.7)
Self-esteem (1 item, 1- to 10-point scale)	6.5	(2.3)
Psychological distress (Kessler-6, 6 items, 0- to 4-point scale)	2.0	(0.8)

Accelerates improvements in QOL - half a SD higher than in Other general (NRS) samples despite shorter time in recovery ….

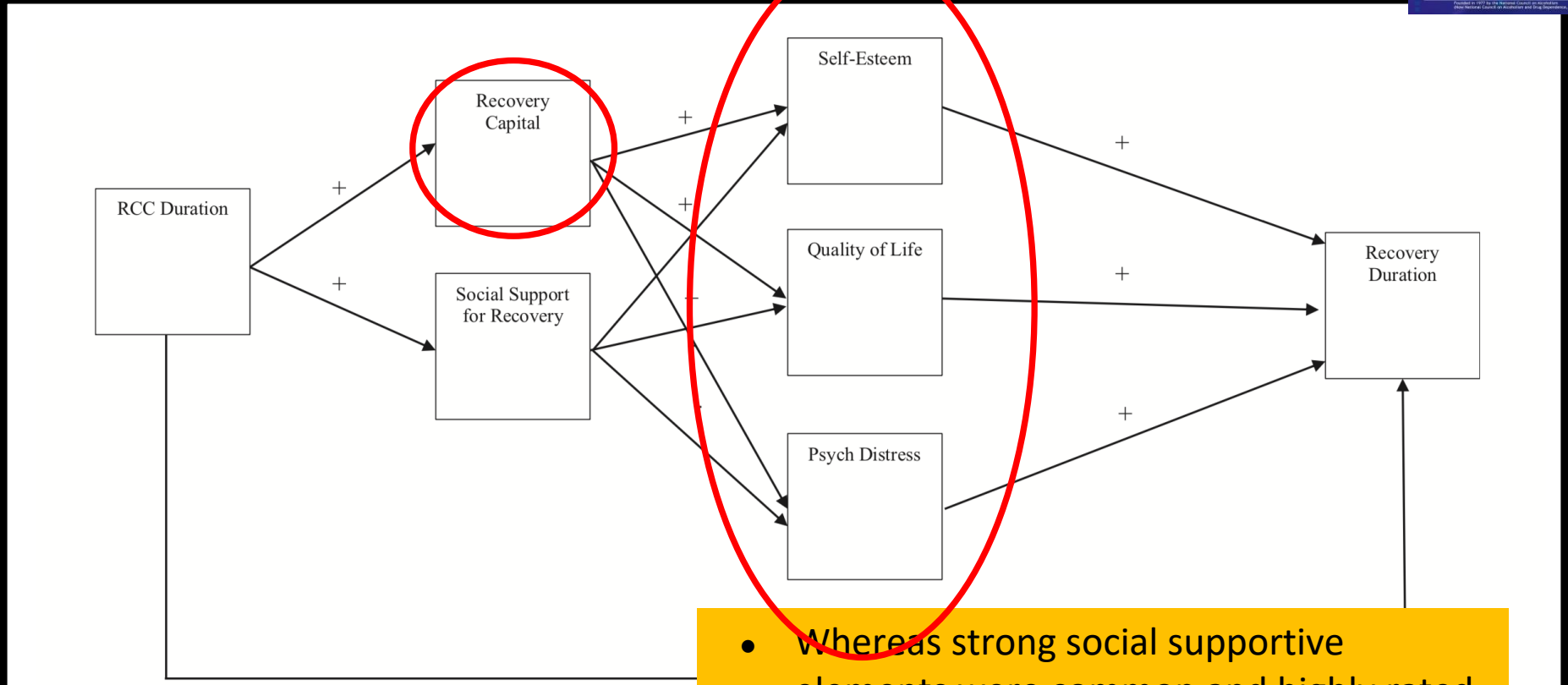

Fig. 1. Conceptual model of the theorized relationships among
"+" = theorized positive association among linked variables; "–" =
ote:

- Whereas strong social supportive elements were common and highly rated, **RCCs appear to play a more unique role not provided either by formal treatment or by MHOs** in facilitating the acquisition of recovery capital and thereby enhancing functioning and quality of life.

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Recover Management Check-ups (RMC)

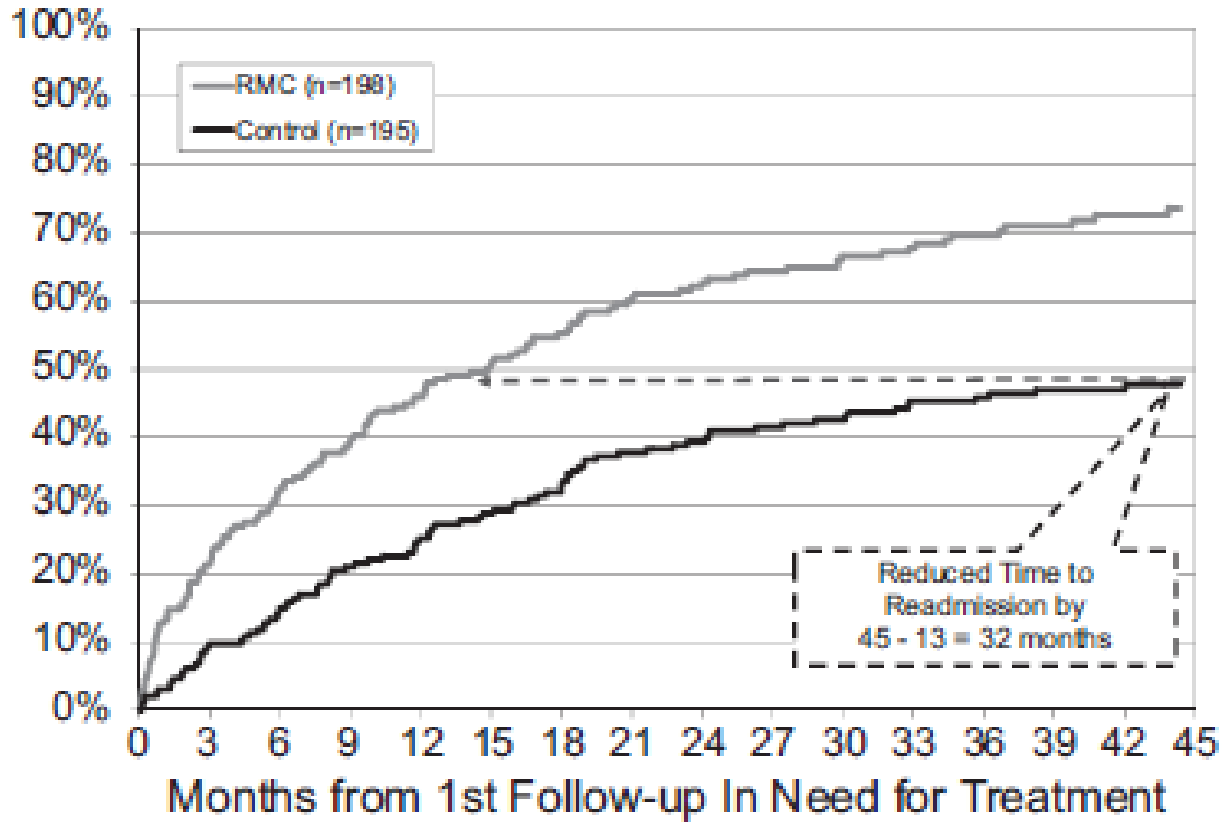
4-year outcomes from the Early Re-Intervention experiment using Recovery Management Checkups

- N=446 adults with SUD, mean age = 38, 54% male, 85% African-American
- randomly assigned to
  - quarterly outcome monitoring (OM) only
  - quarterly OM plus RMC
- Recovery Management Checkups
  - Linkage manager who used motivational interviewing to review the participant's substance use, discuss treatment barrier/solutions, schedule an appointment for treatment re-entry, and accompany participant through the intake
  - If participants reported no substance use in the previous quarter, the linkage manager reviewed how abstinence has changed their lives and what methods have worked to maintain abstinence

Source: Dennis & Scott (2012). Drug and Alcohol Dependence, 121, 10-17

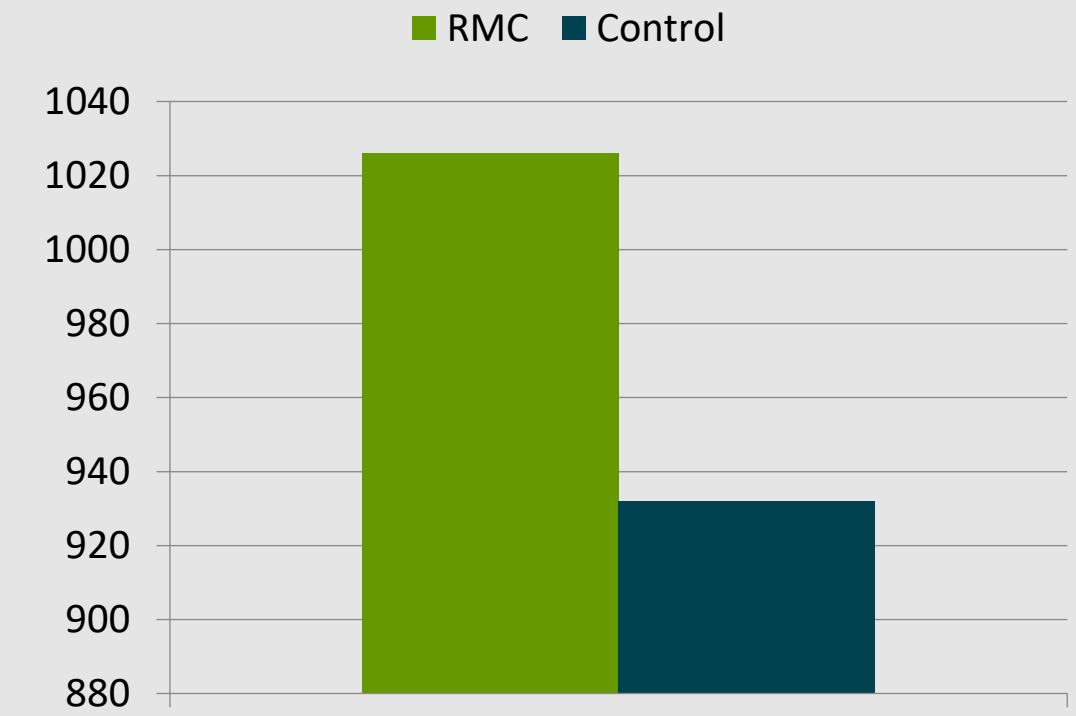
Results Return to treatment

Participants in RMC condition sig. more likely to return to treatment sooner



Source: Dennis & Scott (2012). Drug and Alcohol Dependence, 121, 10-17

Results 4
Days abstinent



*p<.01

Of 18 vars tested, the only variables that predicted return to treatment was the intervention

Cost-effectiveness analysis of Recovery Management Checkups (RMC)

- **Sample**: 446 patients with substance use disorders residing in Illinois
- **Design**: Cost-effectiveness analysis using RCT data
- **Intervention**: Outcome monitoring (OM) plus RMC vs. OM-only
- **Follow-up**: 4 years
- **Outcome**: Cost per participant, number of days of abstinence, number of substance use-related problems

Addiction

RESEARCH REPORT

doi:10.1111/add.123

Cost-effectiveness analysis of Recovery Management Checkups (RMC) for adults with chronic substance use disorders: evidence from a 4-year randomized trial

Kathryn E. McCollister[1], Michael T. French[2], Derek M. Freitas[3], Michael L. Dennis[4], Christy K. Scott[5] & Rodney R. Funk[4]

Department of Public Health Sciences, Miller School of Medicine, University of Miami, Miami, FL, USA,[1] Department of Sociology, University of Miami, Coral Gab FL, USA,[2] New York University, School of Medicine, New York, NY, USA,[3] Chestnut Health Systems, Normal, IL, USA[4] and Chestnut Health Systems, Chicago USA[5]

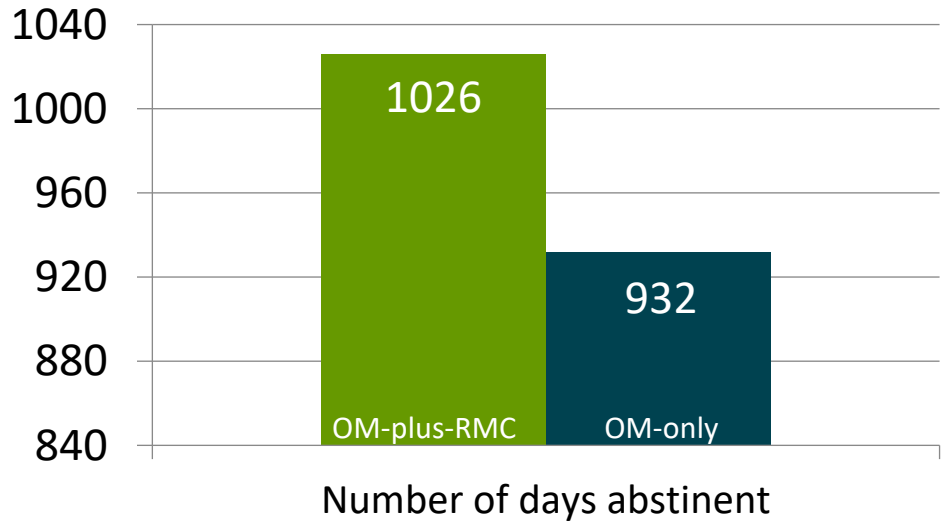
ABSTRACT

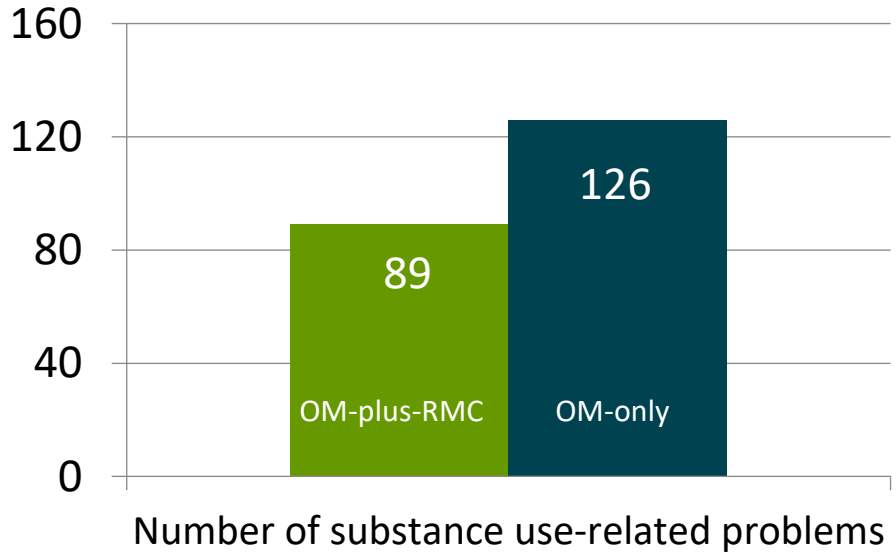
Aims This study performs the first cost-effectiveness analysis (CEA) of Recovery Management Checkups (RMC) f adults with chronic substance use disorders. **Design** Cost-effectiveness analysis of a randomized clinical trial of RM Participants were assigned randomly to a control condition of outcome monitoring (OM-only) or the experimen condition OM-plus-RMC, with quarterly follow-up for 4 years. **Setting** Participants were recruited from the larg central intake unit for substance abuse treatment in Chicago, Illinois, USA. **Participants** A total of 446 participar who were 38 years old on average, 54% male, and predominantly African American (85%). **Measurements** Data the quarterly cost per participant come from a previous study of OM and RMC intervention costs. Effectiveness measured as the number of days of abstinence and number of substance use-related problems. **Findings** Over t 4-year trial, OM-plus-RMC cost on average $2184 more than OM-only ($P < 0.01$). Participants in OM-plus-RM averaged 1026 days abstinent and had 89 substance use-related problems. OM-only averaged 932 days abstinent a reported 126 substance use-related problems. Mean differences for both effectiveness measures were statistica significant ($P < 0.01$). The incremental cost-effectiveness ratio for OM-plus-RMC was $23.38 per day abstinent a $59.51 per reduced substance-related problem. When additional costs to society were factored into the analys OM-plus-RMC was less costly and more effective than OM-only. **Conclusions** Recovery Management Checkups a a cost-effective and potentially cost-saving strategy for promoting abstinence and reducing substance use-relat problems among chronic substance users.

Keywords Chronic substance use disorder, cost-effectiveness analysis, economic evaluation, Recovery Manag ment Checkups.

Costs and Effectiveness Estimates

- Cost on average (per participant) to deliver:
  - OM-plus-RMC: $4,889
  - OM-only: $2,705





- Incremental effectiveness of OM-plus-RMC:
  - 94 additional days abstinent
  - 37 fewer substance use-related problems

Connecting the Dots

Toward a Recovery-Oriented System of Care (ROSC)

A ROSC is a coordinated network of treatment and community-based services and supports that is person-centered and builds on the strengths and resiliencies of individuals, families, and communities to help achieve remission and improved health, wellness, and quality of life for those with or at risk of alcohol and drug problems

This broader ROSC-type orientation is what NIDA now models as "comprehensive drug addiction treatment" …

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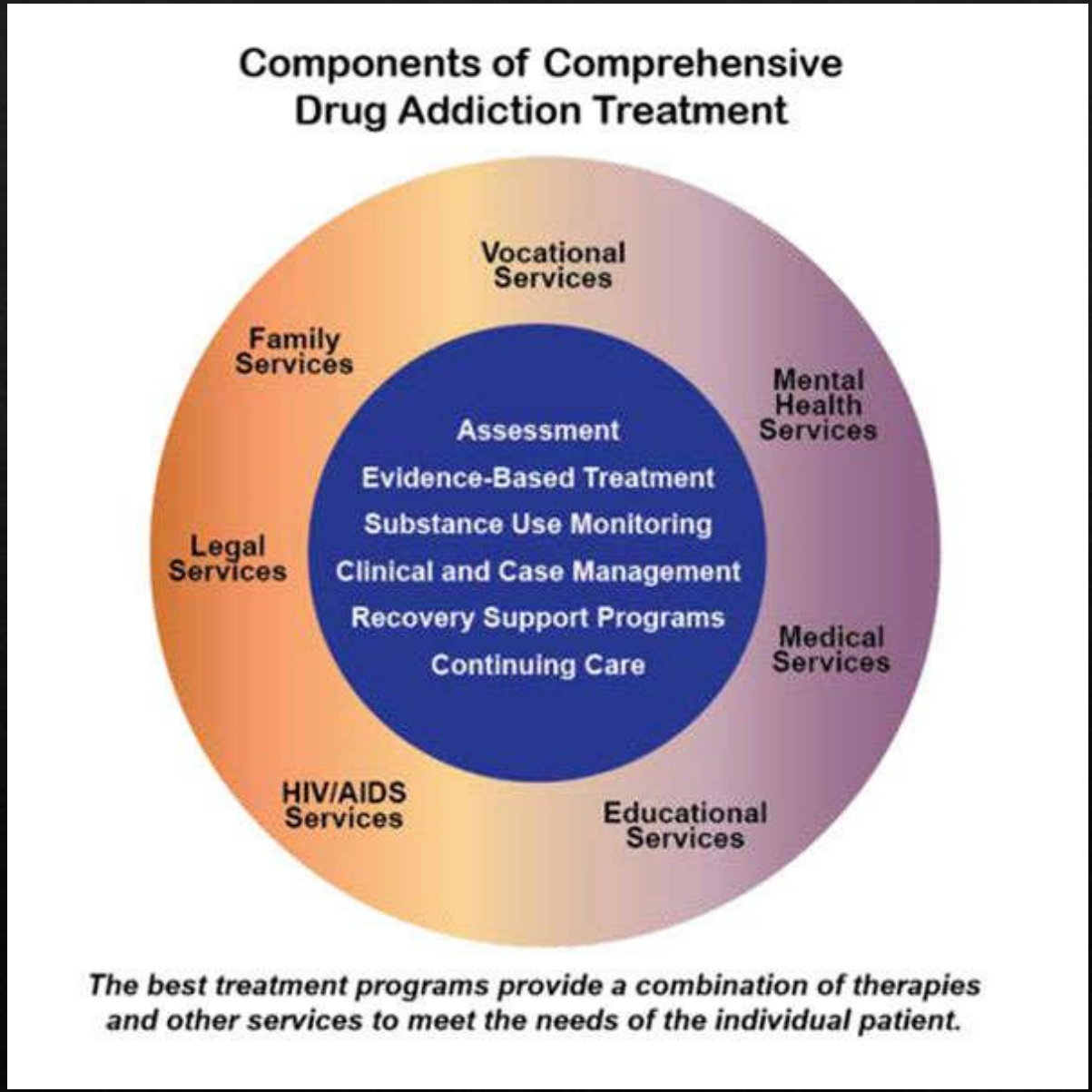
National Institute on Drug Abuse
The Science of Drug Abuse & Addiction



Outline

Rationale - How did we get here? A rationale for the new public health and scientific focus on sustained remission and recovery

Recovery Support Services and Recovery Capital – facilitating supportive environments and recovery capital

Recovery Process – Recovery milestones and their utility. Who needs what, when, for how long, at what intensity?

Insights - Some novel findings from research

Recovery Milestones

- Initial 0-3m
- Early 4-12m
- Sustained 1-5yrs
- Stable 5+yrs

What do we know about recovery milestones and trajectories?

Relevant to inform answers to Questions regarding Treatment and Recovery Support Services…

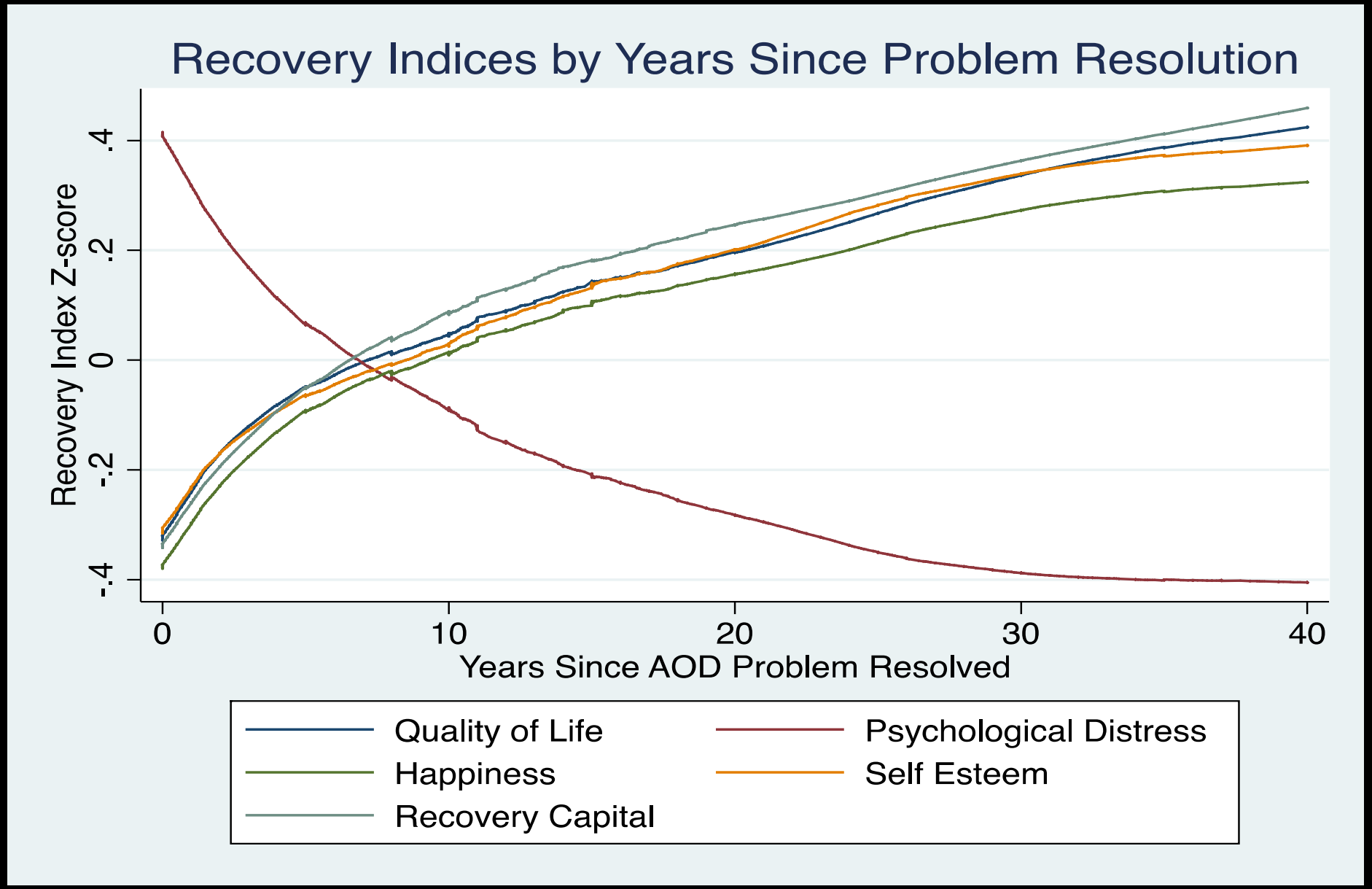
Who needs what type of service?

When in their recovery?

For what duration?

At what intensity?

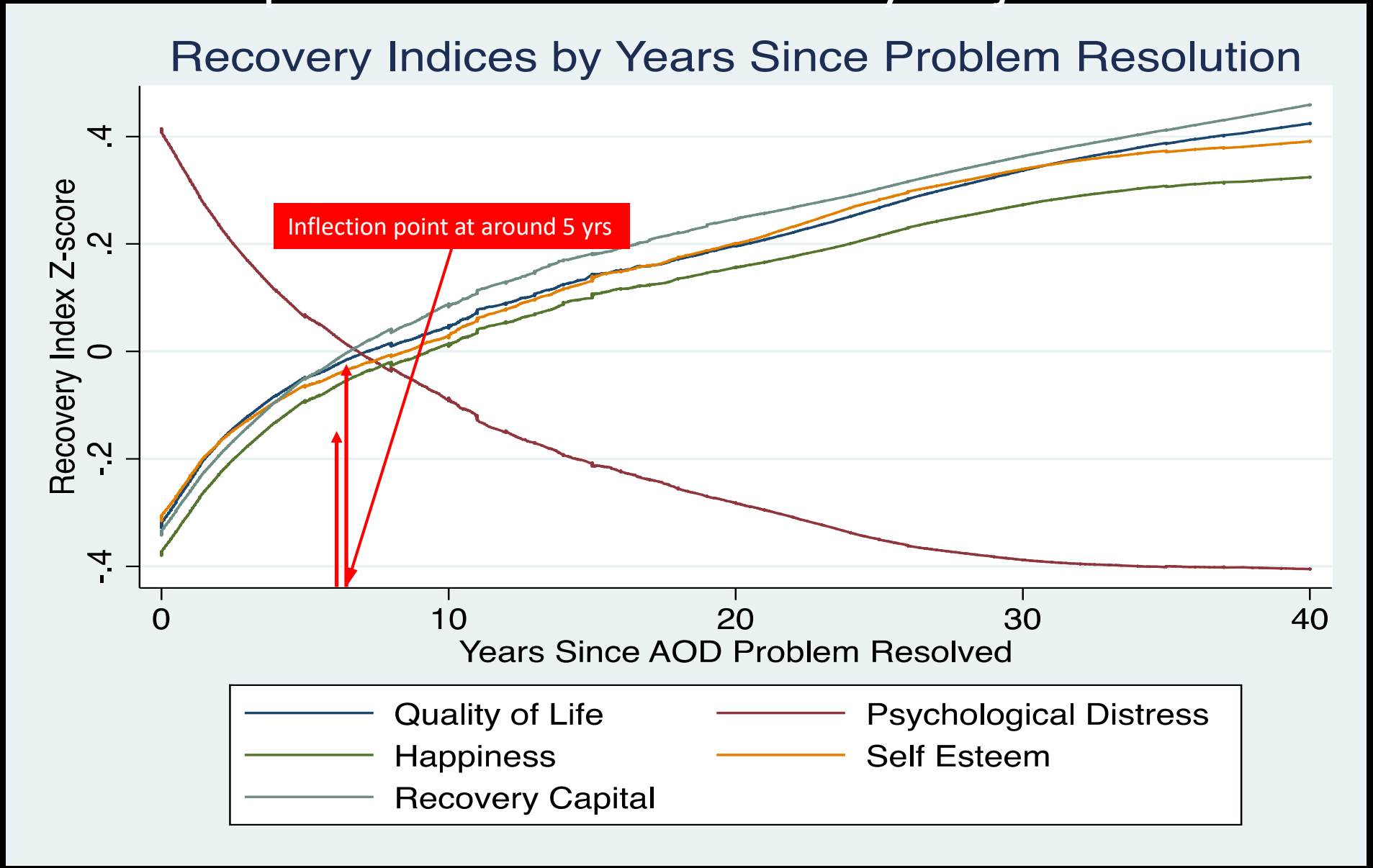
40-Year Temporal Horizon of Recovery Trajectories



National Recovery Study (NRS) N=2,002

Kelly et al, 2018; *Beyond Abstinence; Alcoholism: Clinical Experimental Research*

40-Year Temporal Horizon of Recovery Trajectories



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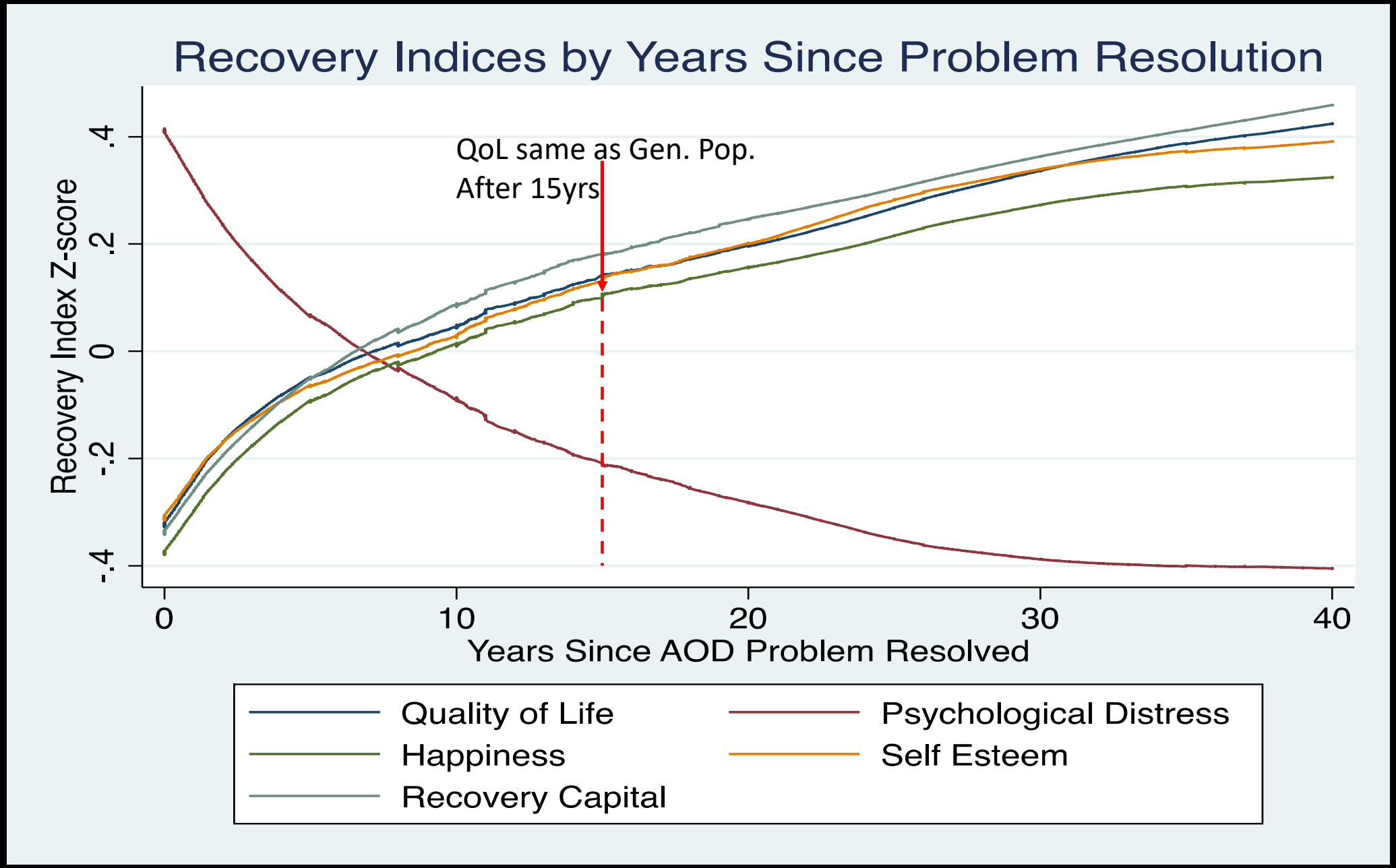


Kelly et al, 2018; *Beyond Abstinence; Alcoholism: Clinical Experimental Research*

Changes in Recovery Capital and Quality of life Among Different Primary Substance Groups in first 5 yrs of Recovery

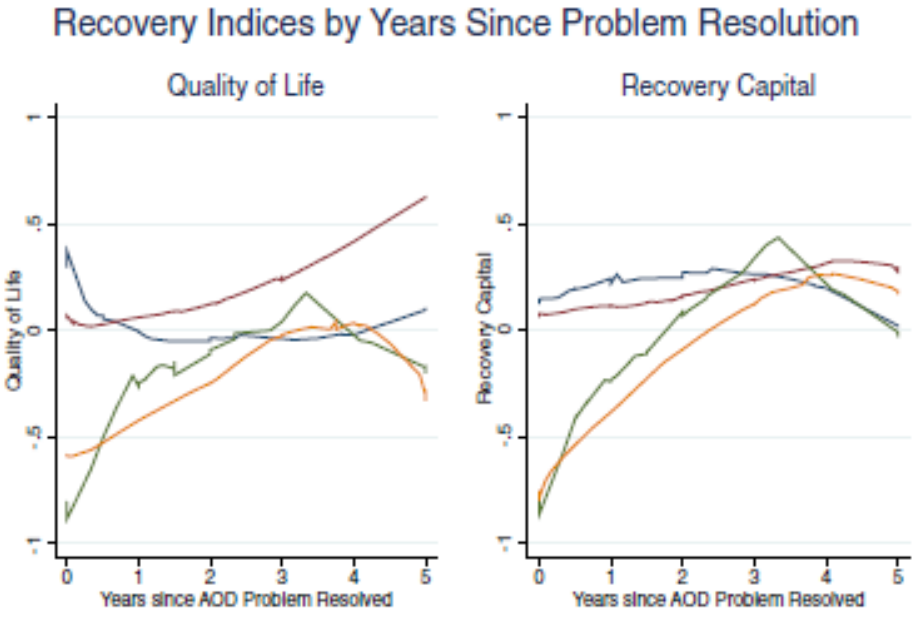
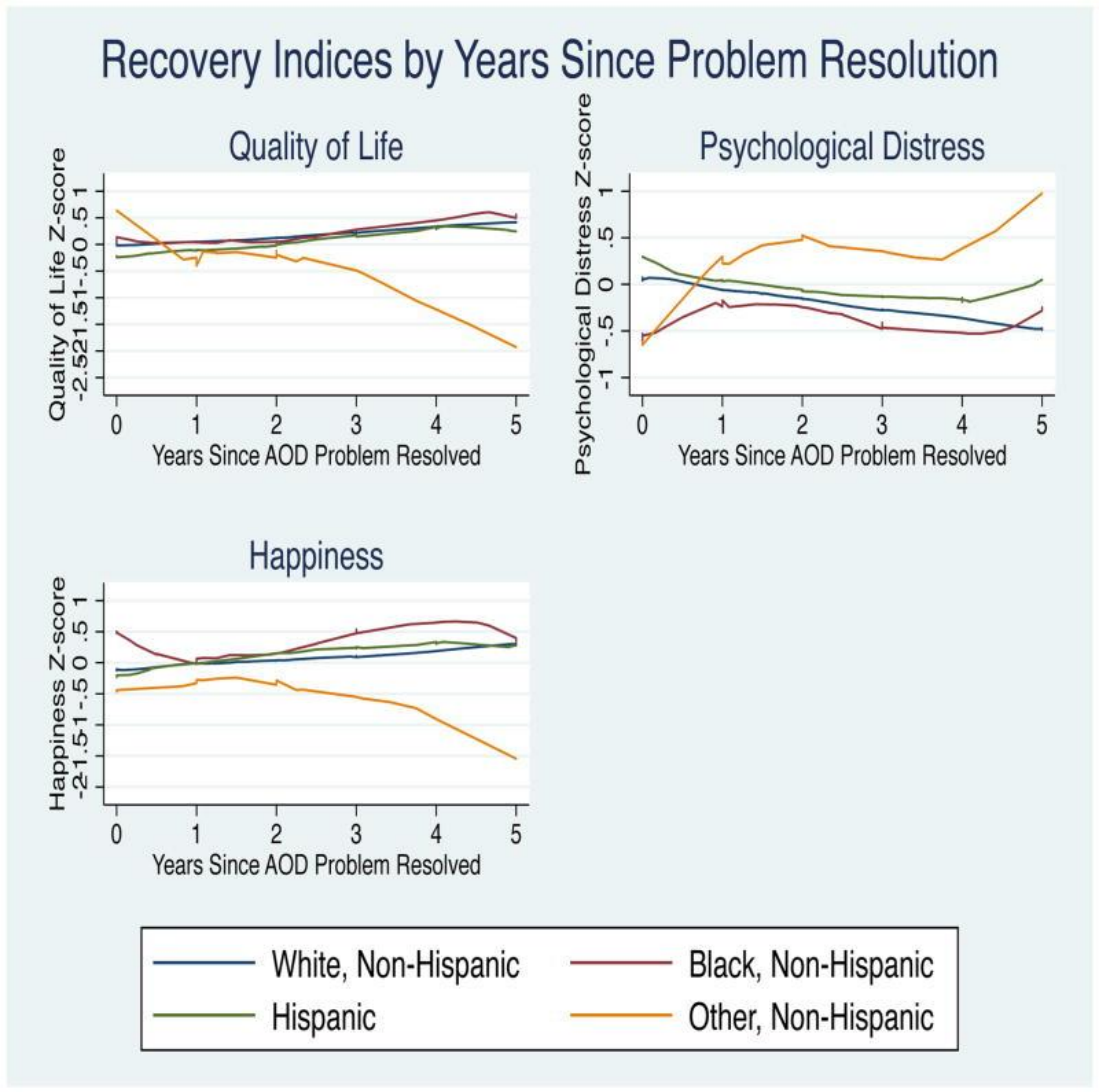
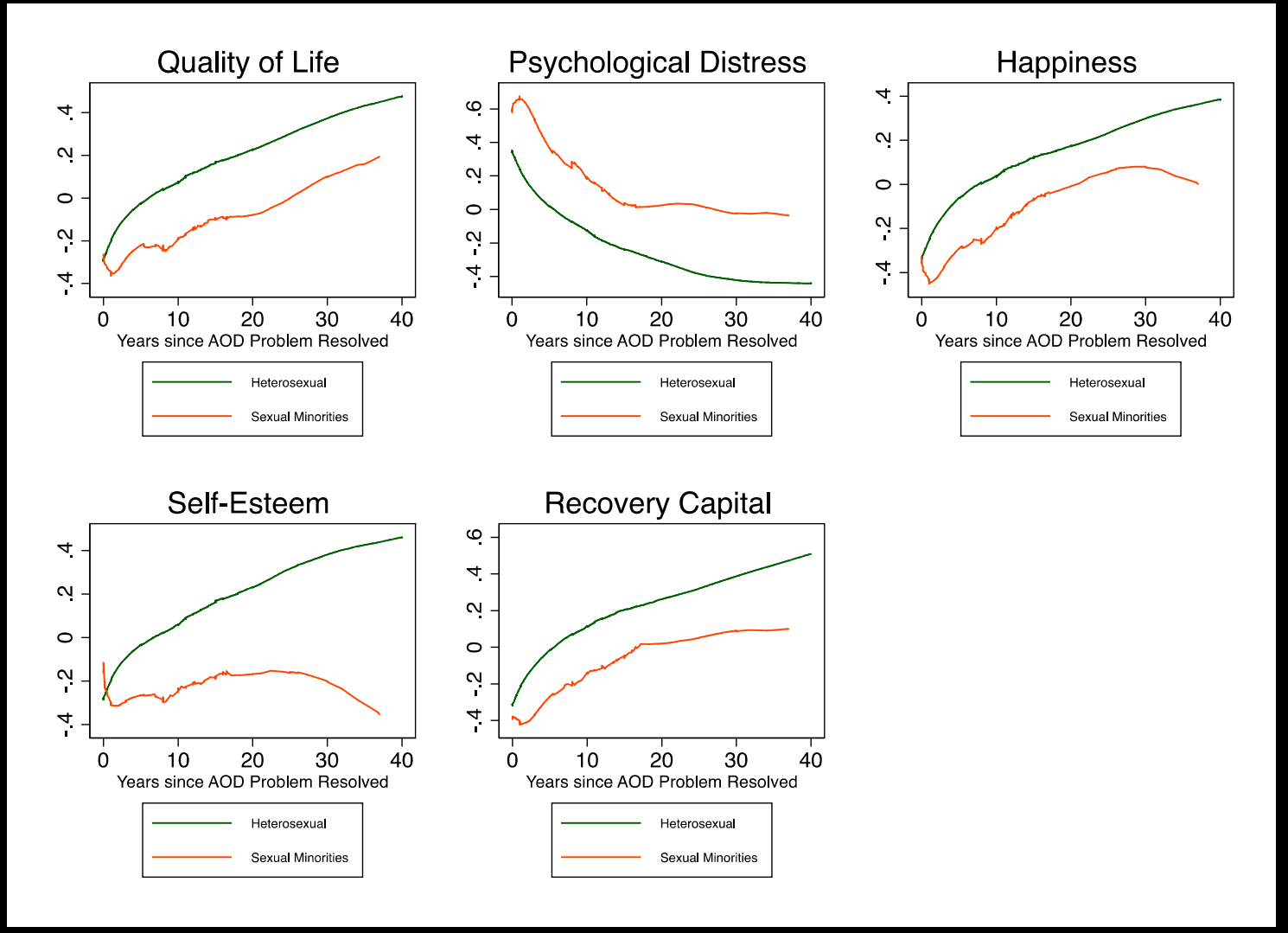


Fig. 5. Locally Weighted Scatterplot Smoothing (LOWESS) analysis of recovery indices by years since problem resolution stratified by primary substance.

Changes in Quality of life, Distress, Happiness Among Different Racial/Ethnic Groups in first 5 yrs of Recovery

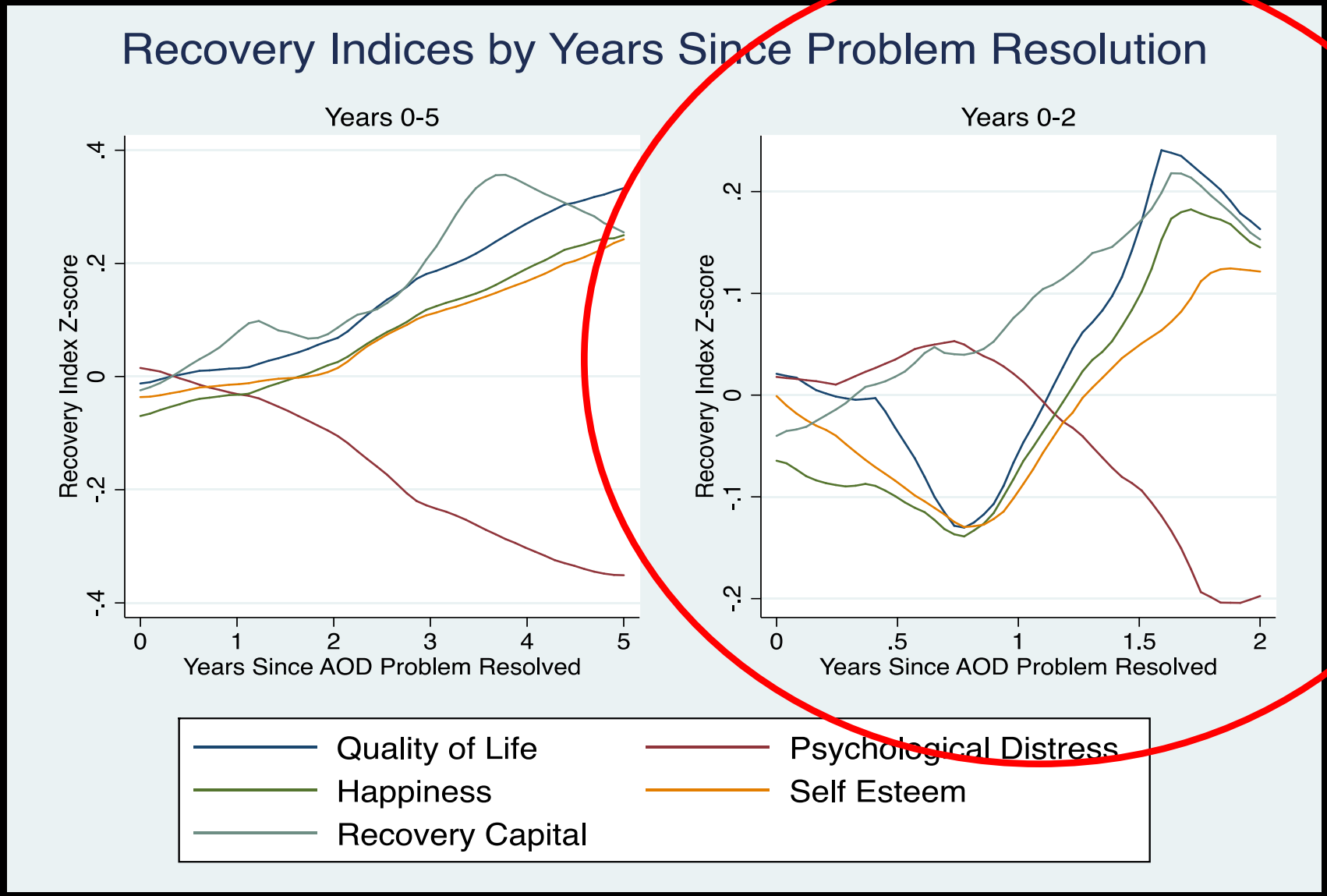


Sexual Minority vs Heterosexual Status and Changes in Functional and Well-Being Indices - 40 yr. temporal horizon



Haik et al under review

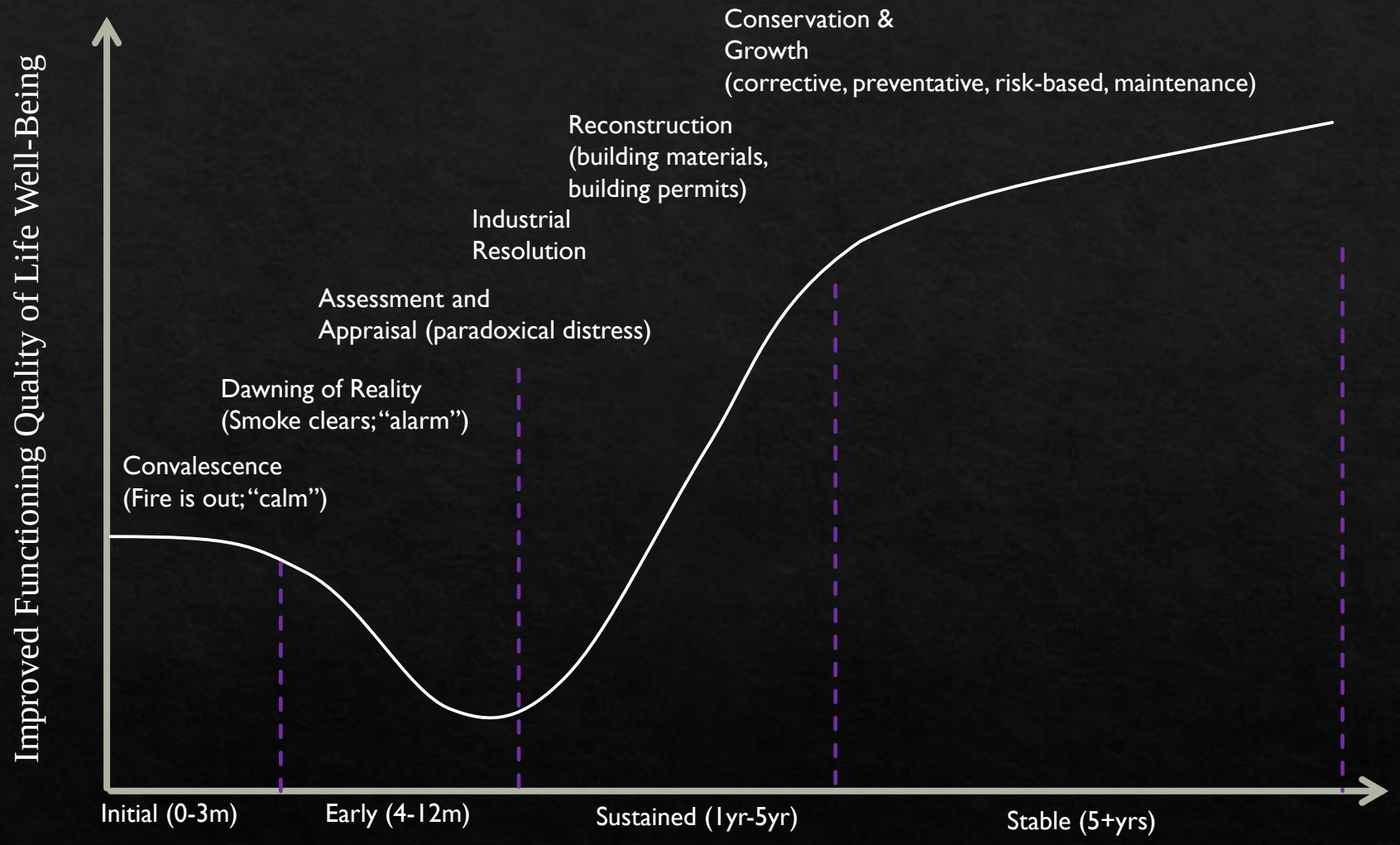
2-yr Year Temporal Horizon of Recovery Trajectories



Kelly et al, 2018; *Beyond Abstinence; Alcoholism: Clinical Experimental Research*

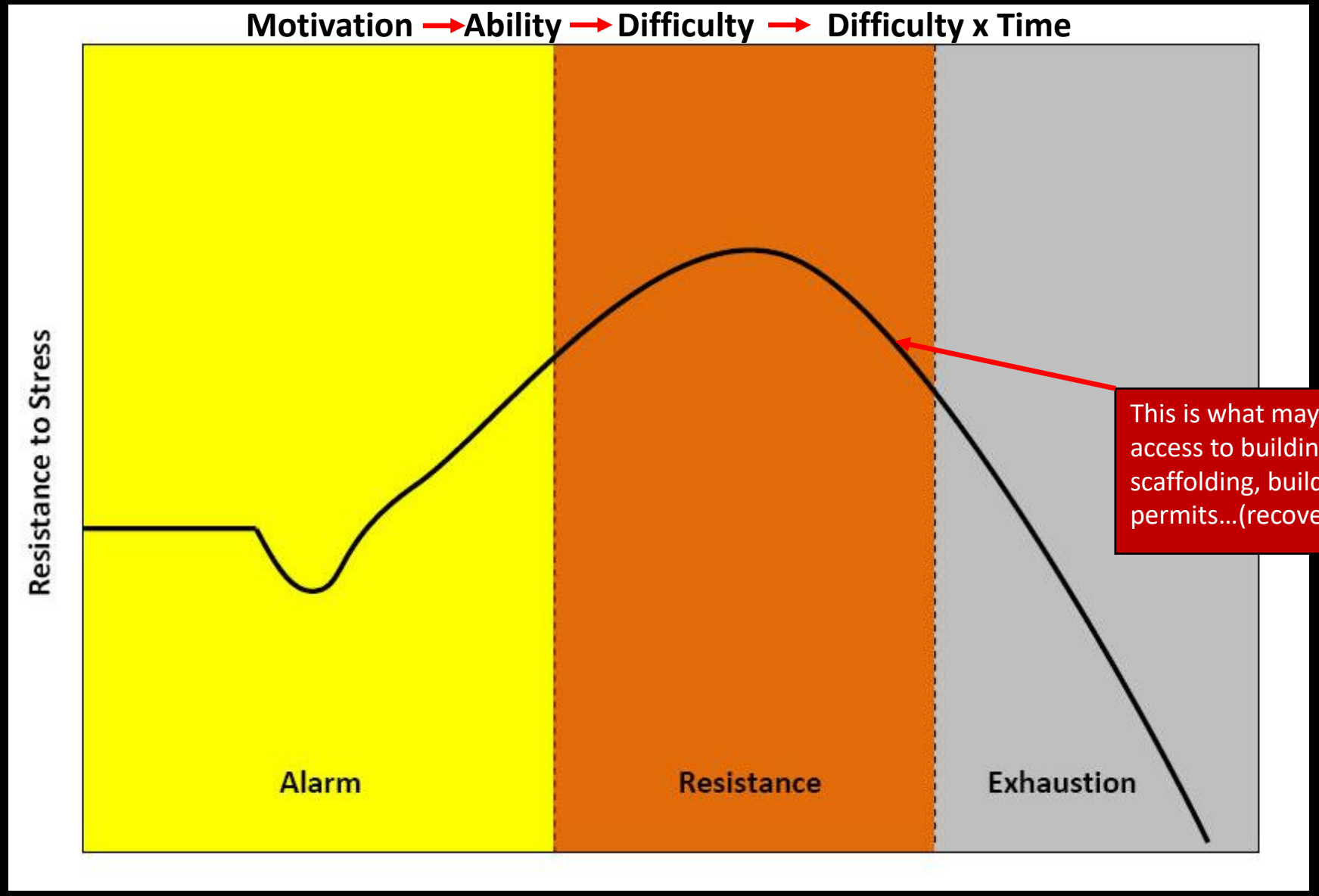
Recovery Curve

Preliminary Data-Based Recovery Milestones and Tasks…



Based on Kelly et al, 2018; *Beyond Abstinence; Alcoholism: Clinical Experimental Research*

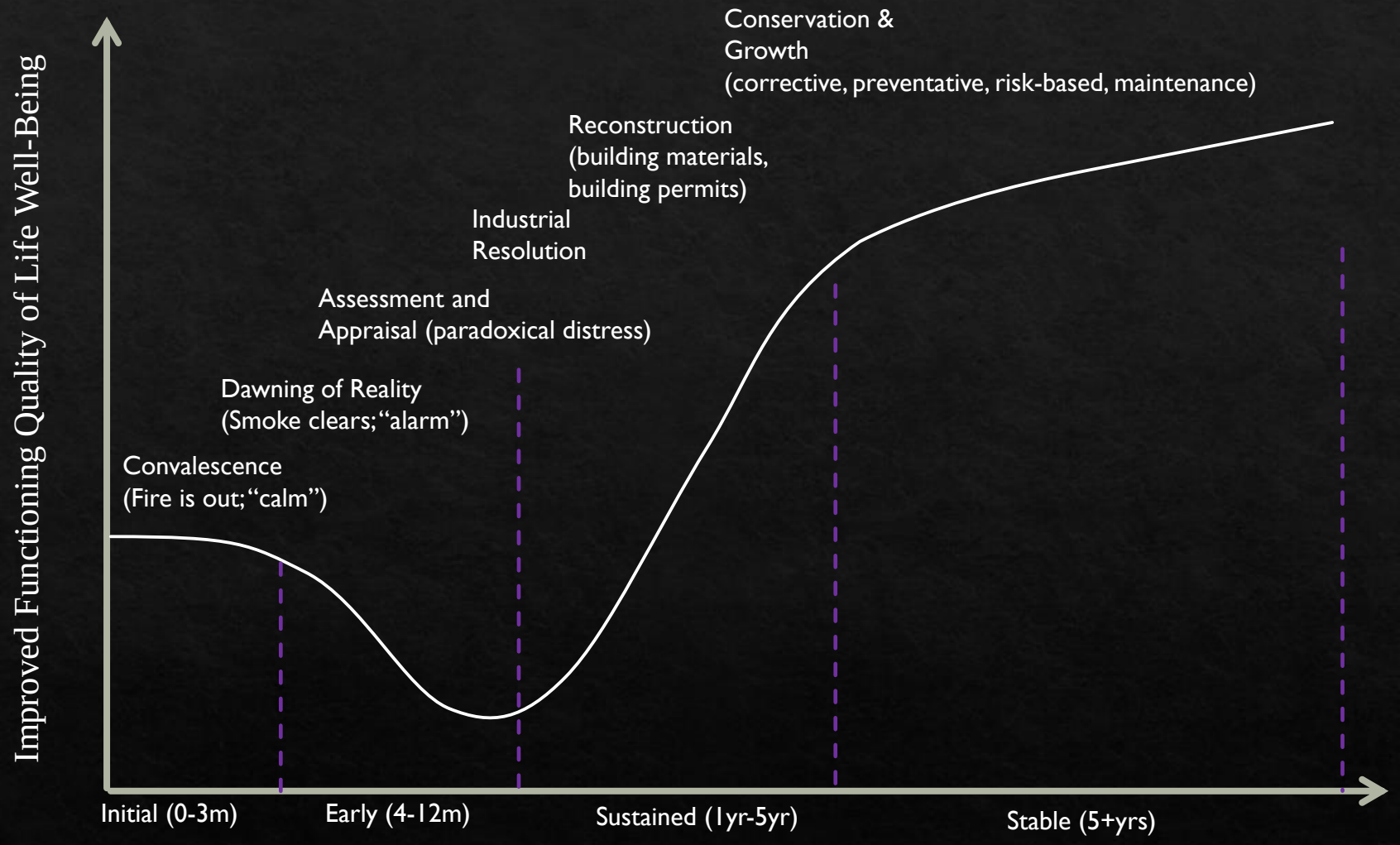
Noteworthy that the dynamics of the recovery curve are very similar as the adaptation to stress curve …



Adapted from Selye, 1956; McEwen, 1998; 2009

Recovery Curve

Preliminary Data-Based Recovery Milestones and Tasks…



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Summary

Past 50 yrs have brought new insights and paradigm shifts including recognition of a long clinical course to remission

Enhanced awareness of need to address environmental stressors build availability and access to recovery capital to mitigate stress, instill hope, and strengthen resilience may shorten course to stable remission/recovery

Array of recovery support services emerged and grown with increasing empirical scrutiny and growing support

Recovery research is revealing dynamic nature of recovery process -can help inform who needs what types of services, when, for how long, and at what intensity

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